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H. M. SHIPS DAMAGED OR SUNK BY ENEMY ACTION

3rd. SEPT. 1939 to 2nd. SEPT. 1945

1952

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General alphabetical index of Major H.M. Ships damaged or sunk by enemy action during the period September, 1939, to September, 1945.

Appendix - H.M. Ships damaged or sunk by British or Allied weapons during the period September, 1939, to September, 1945.

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C.B. 4273(52)

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3rd SEPT. 1939 to 2nd SEPT. 1945

CONDITIONS OF RELEASE

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Director of Naval Construction,
Admiralty.

AMENDMENTS

Amendment No.	C.A.F.O. "P" No.	Date of Insertion in this copy	Initials

Admiralty,

1952.

P.02159/48

C.B.4273(52), H.M. Ships Damaged or Sunk by Enemy Action 3rd Sept. 1939 to 2nd Sept. 1945, having been approved by My Lords Commissioners of the Admiralty is hereby promulgated for information and guidance.

C.B's 4273(1), (2), (3), (4) and (5) are hereby superseded and all copies are to be destroyed, certificates of destruction being forwarded through the usual channels.

By Command of Their Lordships,

J.S. Lang

INTRODUCTION

The information in this book is set out as a series of "incidents", those which occurred to Battleships are collected in the section headed BATTLESHIPS and those which occurred to Cruisers in the section headed CRUISERS, and so on. Within each section the incidents are given in order of date and the year is printed at the head of each page.

Each incident is dealt with in the following order;

(a) Name of the Ship and nature of attack.
(b) Date, and time out of action as a result of the attack.
(c) Brief description of the incident.
(d) Fighting efficiency after the attack.
(e) Remarks, lessons learned.

It is a complete summary as far as is known of War Damage to H.M. Ships in the Second World War and is based on reports in the Admiralty. Any additional information known to readers of the book that should be incorporated, or any corrections required to the text should be forwarded to the Secretary of the Admiralty through the usual channels and will be welcomed.

2. With the release of British Naval Prisoners of War, additional information became available for some ships damaged in the earlier stages of the war, this and other information has been included.

3. The report number (D.N.C.4B/R. or 6/R. series) is quoted below the name of the ship for those incidents which have been described in detail in Damage Reports prepared by the Naval Construction Department. Such reports have been prepared only for those incidents considered to be of particular technical interest, and for which the data supplied by the Commanding Officers are sufficiently comprehensive.

4. For completeness the Appendix gives a brief summary of incidents known in the Naval Construction Department in which H.M. Ships were sunk or damaged by British or Allied weapons. It should be noted that these incidents have not been taken into account in the "Analysis of Loss and Damage" (see paragraph 6 and page) or included in the General Alphabetical Index.

/5. The .....

5. The General Alphabetical Index covers all the major war vessels referred to and is subdivided to indicate the type of weapon responsible for the damage.

6. The "Analysis of Loss and Damage by Enemy Action 1939 - 1945", to be found on page immediately following this introduction, has been made for each main type of ship and includes all ships of that type known to have been attacked by the enemy. The number of each type which was lost, seriously damaged or slightly damaged in each year, up to 1945, has been indicated; corresponding numbers are also shown for the complete period 1939 - 1945.

When considering this analysis it should be noted that:-

(a) No differentiation has been made between the various sizes of weapon, their method of actuation, or methods of attack employed.

(b) No discrimination has been made between ships of the same general type on account of varying size, age or protection.

(c) No consideration has been given to the tactical issues involved in individual incidents or the losses sustained by the enemy forces.

(d) Submarines and all combined-operations and small craft have been omitted.

(e) Ships listed in the appendix have not been included in this Analysis.

(f) Unless otherwise stated, the "Time Out of Action" quoted throughout, is the actual period from the date of damage until the ship was fully repaired and 100% operational. This information has been extracted from the weekly lists issued by Dockyard Department. "Nil" means either that the ship was not undergoing repairs for a sufficient time for her name to appear in the Dockyard Lists, or that the work was carried out by the Ship's Staff, by Depot Ship, or by a foreign dockyard which did not record the time taken.

ANALYSIS OF LOSS AND DAMAGE BY ENEMY ACTION

1939 to 1945

Type of Ship	Nature of Casualty	Nature of Attack: Shell							Bomb							Mine							Torpedo						
		1939-40 No.	1940-41 No.	1941-42 No.	1942-43 No.	1943-44 No.	1944-45 No.	1939-45 No.	1939-40 No.	1940-41 No.	1941-42 No.	1942-43 No.	1943-44 No.	1944-45 No.	1939-45 No.	1939-40 No.	1940-41 No.	1941-42 No.	1942-43 No.	1943-44 No.	1944-45 No.	1939-45 No.	1939-40 No.	1940-41 No.	1941-42 No.	1942-43 No.	1943-44 No.	1944-45 No.	1939-45 No.
Capital Ships	Sunk	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	3	-	-	-	4
	Serious Damage	-	1	-	-	1	-	2	-	2	3	-	1	-	6	1		2		2		5	1	2	2	-	-	-	5
	Slight Damage	2	1	-	-	-	-	3	6	5	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aircraft Carriers	Sunk	1	-	-	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-	3	1	-	-	5
	Serious Damage	-	-	-	-	-	-	-	-	5	1	1	-	3	10	-	-	-	-	1	-	1	-	-	-	1	1	1	3
	Slight Damage	-	-	-	-	-	-	-	1	2	1	-	-	3	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cruisers	Sunk	-	-	3	-	-	-	3	1	4	3	1	1	-	10	-	-	1	-	-	-	1	1	1	9	-	2	-	13
	Serious Damage	2	3	2	-	1	1	9	7	16	6	3	6	4	42	2	2	2	-	2	-	8	1	8	5	7	2	1	24
	Slight Damage	4	5	5	2	5	1	22	17	14	8	1	3	2	45	1	-	1	-	-	-	2	-	-	-	-	-	-	-
Destroyers	Sunk	5	-	4	4	-	-	13	13	11	14	2	4	-	44	6	4	3	-	4	1	18	7	3	15	12	15	-	52
	Serious Damage	4	3	14	8	6	5	40	28	21	13	7	8	4	81	3	16	5	2	6	3	35	3	2	3	4	2	1	15
	Slight Damage	11	8	12	11	27	5	74	44	36	23	8	6	1	118	-	4	-	-	-	-	4	-	-	-	1	1	-	2
Sloops Corvettes Frigates and Minesweepers	Sunk	-	-	1	1	-	-	2	3	6	4	2	-	1	16	2	2	2	3	6	2	17	1	3	7	8	19	12	50
	Serious Damage	-	-	1	1	-	-	2	9	8	5	4	2	-	28	1	8	3	2	12	13	39	-	1	-	4	6	8	19
	Slight Damage	-	1	2	1	5	1	10	7	11	7	4	3	1	33	1	2	-	1	4	2	10	-	1	-	-	-	1	2

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOOD 26th Sept., 1939	One Direct Hit with Bomb	Nil	HOOD was hit by a bomb which struck the top of the port bulge a glancing blow and caused minor damage to the bulge plating. No damage was caused to the side armour. Bulge compartments in the vicinity of the damage were flooded. Fighting Efficiency - Not impaired.
ROYAL OAK 14th Oct., 1939	Four Contact Torpedoes Fired from Submarine	Sunk	ROYAL OAK was anchored at Scapa Flow when an explosion occurred well forward; this was followed 12 minutes later by three other explosions, all to starboard, abreast the engine room, forward boiler room and 'A' and 'B' magazines. The ship heeled quickly to about 45 degrees remaining there for about 2 to 3 minutes, and then sank, 13 minutes later, in 15 fathoms. REMARKS This incident emphasised the need for ships to be kept watertight up to about 8 feet above the deep waterline.
IRON DUKE 17th Oct., 1939	Two Near Misses with delay action fuzed Bombs, judged to have been 250 kgm.	Beached	IRON DUKE was moored at Scapa Flow when two near miss bombs caused flooding of 'C' boiler room and 'Q' and 'Y' magazines. The ship was beached at Ore Bay but subsequent slow flooding filled all compartments abaft 'B' boiler room. IRON DUKE was moved to Longhope on the 14th December and re-beached on the 26th January 1940 where she was aground at all tides. Note The ship had been demilitarized when this incident occurred.

BATTLESHIPS - 1939

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NELSON 4th Dec., 1939 D.N.C.4B/R2	One Magnetic Mine in 20 fathoms Charge 1500 lbs. T.N.T.	7 months	NELSON was entering Loch Ewe at 13 knots when an explosion occurred forward under the bottom on the starboard side. The outer bottom plating and framing for 70 feet on the starboard side was set inboard a maximum of 4 feet and ruptured in several places. Flooding extended for 140 feet and the ship heeled 3 degrees to starboard. No major shock damage occurred to main machinery. Loading arrangements of the main armament were seriously damaged by shock and the torpedo armament was out of action due to flooding. Fighting Efficiency - Seriously impaired. The main and torpedo armament were out of action. The speed was reduced to 10 knots due to flooding. NELSON was able to steam in calm weather at 14 knots from Loch Ewe to Portsmouth - about 1,000 miles - after temporary repairs had been made. REMARKS This incident emphasised the need for modification of the pumping arrangements in this class of ship.
BARHAM 28th Dec., 1939 D.N.C.4B/R5	One Contact Torpedo Fired from Submarine	6 months	**BARHAM** was operating at 19 knots off the west coast of Scotland when a torpedo struck the port side abreast 'A' and 'B' shell rooms. The bulge structure was wrecked over an area of 32 feet by 17 feet and the main protective bulkhead was ruptured and forced inboard about 6 feet. The forward magazine group and most compartments abreast the hit were flooded. An immediate 7 degree heel to port was corrected by the transference of oil fuel. No damage was caused to the main machinery or to the guns or mountings of the main and secondary armament. Fighting Efficiency - Seriously impaired. 'A' and 'B' turrets were out of action due to flooding of their magazines. The speed was temporarily reduced to 10 knots but after 1½ hours this was increased to 16 knots. REMARKS As indicated on experimental work this incident confirmed that vent plates in underwater protection systems do not reduce the damage caused by an underwater explosion.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IRON DUKE 16th March, 1940	Two Near Misses with delay action fuzed Bombs	Indeterminate (Ship already beached)	IRON DUKE had been beached at Longhope and was being used as an accommodation ship and supplementary defence unit for Scapa Flow when she was attacked by enemy aircraft. Two near miss bombs caused slight buckling of the hull plating in way of the bilge keel.
RODNEY 9th April, 1940 D.N.C.4B/R8	One Direct hit with delay action fuzed Bomb, judged to have been 500 kgm A.P. type	Nil	RODNEY was operating off the Norwegian coast, when a bomb struck the shelter deck between the funnel and the bridge. The bomb perforated the upper and main decks and penetrated the 4 inch armoured middle deck where it broke up and partially detonated. Minor damage to the internal structure was caused by blast and splinters. Fighting Efficiency - Slightly impaired. P.1. 6 inch turret was temporarily put out of action.
RENOWN 9th April, 1940 D.N.C.4B/R7	Two Direct hits with 11 inch Shells, neither detonating and possibly one Direct hit with 8 inch shell	1 month including repairs due to own gun blast and heavy weather damage	RENOWN was in action against the SCHARNHORST and HIPPER off the Norwegian coast when she sustained two and possibly three direct hits from shells. One 11 inch shell perforated the main leg of the foremast and passed overboard without detonating. Another 11 inch shell struck aft on the starboard side plating, between the upper and main decks, passed across the ship and out through the port side without detonating. The casing at the top of the forward funnel was split and bulged and it was thought that this may have been caused by a third shell of 8 inch calibre. Fighting Efficiency - Not impaired. REMARKS The value of the tripod mast was indicated

BATTLESHIPS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RESOLUTION 16th May, 1940 D.N.C.4B/R21	One Direct Hit with delay action fuzed Bomb, judged to have been 100 kgm A.P. type	2 weeks	RESOLUTION was anchored at Tjeldsundet, Norway, when she was hit by a bomb which struck the starboard side of the upper deck between 'X' and 'Y' turrets. The bomb perforated the main and middle decks before finally bursting with partial detonation on the sloping protective deck. Apart from minor effects from blast, structural damage was confined mainly to that caused by the passage of the bomb through the ship. Small fires which were started amongst clothing and bedding were quickly extinguished. Fighting Efficiency - Not impaired. Temporary repairs were affected by the ship's staff and RESOLUTION remained in service for one month before permanent repairs were carried out.
HOOD 3rd July, 1940	Shell "Shorts"	Nil	HOOD sustained splinter damage from "shorts", whilst in action against the French Fleet at Oran. Damage was only of a superficial nature and was confined to fittings and structure above the waterline. Fighting Efficiency - Not impaired.
WARSPITE 8th July, 1940	One Near Miss with direct action fuzed Bomb, judged to have been 100 kgm	Nil	WARSPITE was operating in the Mediterranean when she was damaged by a near miss on the port side abreast No.2 - 4 inch mounting. Minor damage to structure was caused by splinters. Fighting Efficiency - Not impaired.
MALAYA 8th July, 1940	One Near Miss Bomb	Nil	MALAYA was operating in the Mediterranean when a splinter from a near miss bomb cut one of the multicore cables to the forward H.A. director. This affected the telephones, Evershed and firing circuits of the forward H.A. guns until temporary repairs were completed in about half an hour. Fighting Efficiency - Temporarily impaired. Control of the forward H.A. guns was temporarily lost.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WARSPITE 12th July, 1940	One Near Miss with direct action fuzed Bomb, judged to have been 50 kgm	2 days	WARSPITE was operating in the Mediterranean when she sustained damage from a near miss bomb which burst abreast the flying deck on the starboard side. Minor damage to structure was caused by splinters. Fighting Efficiency - Not impaired. WARSPITE remained in service for one month before permanent repairs were carried out.
RENOWN 24th Sept., 1940	Near Miss Bombs	Nil	RENOWN, was attacked by 40 French planes at Gibraltar and sustained some damage from near miss bombs. Details of the damage are unknown but the ship was able to proceed to sea immediately after the attack. Fighting Efficiency - Not seriously impaired.

BATTLESHIPS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RESOLUTION 25th Sept., 1940 D.N.C.4B/R51	One Contact Torpedo (French) Fired from Submarine	6 months Repaired in U.S.A.	RESOLUTION was in action off Dakar at 19 knots when a torpedo struck the port side abreast the forward boiler room. The full depth of the bulge structure was wrecked for 50 feet and the inner and outer bottoms were destroyed over a length of 30 feet. The longitudinal protective bulkhead was strained and leaked. In the vicinity of the explosion the bulge compartments were flooded for 80 feet as were most wing compartments up to the main deck level. The forward boiler room and some adjacent compartments on the port side flooded slowly. A heel of 12 degrees to port was corrected by the transference of oil fuel and portable equipment. Two small fires, caused by electrical failures, were quickly extinguished. A fire due to leaking oil fuel was discovered in the forward boiler room, about an hour after the explosion occurred. This fire was extinguished as the boiler room flooded. The main armament was undamaged mechanically but the port battery of the secondary armament was damaged by the heavy column of water thrown up by the explosion. Fighting Efficiency - Seriously impaired. RESOLUTION was forced to withdraw from action as her main armament could not be trained due to the heavy list. The port side secondary armament was out of action. $4\frac{1}{2}$ hours after the explosion, the main engines were temporarily immobilised, due to a failure in the forced lubrication system. REMARKS This incident emphasised the following points:- 1. The importance of maintaining efficient watertight integrity within the ship as secondary flooding greatly increased the effects of the torpedo. 2. Access trunks to important compartments should be large enough for a pump and men to pass through with ease. 3. Corners and edges of compartments should be kept as clear as possible of pipes and fittings to provide ready access for emergency repairs. 4. All watertight electrical fittings within reach of flooding from oil fuel tanks should be made oiltight. 5. Ventilation trunking through the main deck should be filled with watertight valves at this deck. 6. Watertight doors such as those to oil fuel working spaces should be so arranged that flooding from outboard tends to force them on to their seatings.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BARHAM 25th Sept., 1940	One Direct Hit and One Short with delay action fuzed Shell, judged to have been 9.4 inch One Direct Hit with 6.1 inch direct action fuzed Shell	Nil	BARHAM was damaged by shellfire when in action off Dakar. A 6.1 inch shell struck and detonated on the upper bulge on the starboard side abreast 'B' turret. A hole 4 feet diameter was blown in the bulge plating but otherwise no major damage was caused. The upper and lower bulge compartments abreast the hit were open to the sea. A 9.4 inch shell struck the starboard side of the saluting gun deck, perforated the superstructure and finally detonated on impact with the port paravane davit. Minor damage to structure was caused in way of burst. Another shell, probably 9.4 inch (possibly 15 inch) exploded short, underwater, on the starboard side abreast the funnel. The bulge structure for 7 feet abreast the explosion was forced inboard and sufficiently strained to allow slow flooding of the lower bulge compartments. Fighting Efficiency - Not impaired.
WARSPITE 10th Jan., 1941	One Near Miss with Bomb, judged to have been 1000 kgm	Nil	WARSPITE was operating off Malta when a near miss bomb burst off the starboard side abreast the bow. No major damage was caused to the hull structure but the starboard lower hawse pipe was split, the anchor damaged and the paravane chains severed. Fighting Efficiency - Not impaired.
VALIANT 10th Jan., 1941	Five Near Misses with 500 kgm direct action fuzed Bombs	Nil	VALIANT operating off Malta, suffered superficial splinter damage from five near miss bombs. The yoke on the starboard rudder was loosened and dropped 3/16 inch. Fighting Efficiency - Not impaired.

BATTLESHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MALAYA 20th March, 1941 D.N.C.4B/R76	One Contact Torpedo Fired from Submarine	13 weeks Repaired in U.S.A.	MALAYA was escorting a convoy at 7 knots off the west coast of Africa when a torpedo struck the port side just abaft the forward bulkhead of the forward boiler room. The bulge structure was destroyed for 35 feet and the inner and outer bottom plating was ruptured over an area of 22 ft. by 10 ft. No major damage occurred to the main longitudinal bulkhead. Five armour plates in the lower tier were displaced. In the vicinity of the explosion the bulge compartments for 100 feet, wing protection compartments for 60 feet and all oil fuel tanks abreast the forward boiler room were flooded. The ship heeled 7 degrees to port but this was corrected to $1\frac{1}{2}$ degrees to port by counter flooding. No serious damage occurred to the main engines, electrical equipment or gun armament. Fighting Efficiency - Not seriously impaired. Although the forward boiler room was not put out of action, and could have been used in an emergency, it was decided as a precautionary measure to temporarily shut down this compartment and to restrict the speed to a maximum of 14 knots.
WARSPITE 22nd May, 1941 D.N.C.4B/R106	One Direct Hit judged to have been 250 kgm S.A.P. type delay action fuzed Bomb	7 months including 4 months permanent damage repairs and refit in U.S.A.	WARSPITE during the evacuation of Crete was hit by a bomb which perforated the starboard side of the forecastle deck, abreast the funnel, and exploded on the upper deck near the ship's starboard side. Extensive structural damage occurred in the vicinity of the burst. The forecastle deck was blown upwards over an area of 90 ft. by 30 ft. and the upper deck was holed for 8 ft. by 6 ft. and blown downwards over an area of 130 ft. by 30 ft. No damage was caused to the main engines but No.3 boiler room was temporarily abandoned due to smoke and fumes. Minor fires in the vicinity of the explosion were quickly extinguished. S.1. twin 4 inch A/A gun was blown overboard and S.3 and 4-6 inch guns were badly damaged. Fighting Efficiency - Seriously impaired. On the starboard side, two of the four guns of the 6 inch battery were completely out of action and the foremost 4 inch mounting was missing. The two remaining 6 inch guns and the after 4 inch gun, although undamaged and in local control, were not considered safe for firing due to structural weaknesses. For the same reason it was doubted whether it would have been safe to have fired the main armament except in an emergency. No.3 boiler room was temporarily out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VALIANT 22nd May, 1941 D.N.C.4B/R199	Two Direct Hits and One Near Miss with 50 kgm direct action fuzed Bombs	Nil	VALIANT was damaged in a high level bombing attack during the evacuation of Crete. Two direct hits on the port side of the upper deck, near 'X' turret, caused minor structural and splinter damage. A near miss close to the bulge on the port side, abreast the funnel, caused minor structural damage to the upper and lower bulge compartments which, as a result, flooded for 20 feet. Fighting Efficiency - Not impaired.

BATTLESHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOOD 24th May, 1941	Probably Two or more Direct Hits with 15 inch delay action fuzed Shell	Sunk	HOOD was sunk in the Denmark Straits off Iceland, whilst in action against the German battleship BISMARCK and the cruiser PRINZ EUGEN. Owing to the lack of evidence concerning the direct cause of the loss of HOOD, the following has been based on the Report of the Board of Enquiry on this incident. "We consider it established that the 3rd salvo from BISMARCK hit HOOD on the boat deck with at least one shell. Another shell, just short, from this salvo may have hit her below the waterline. The bulk of the evidence shows that HOOD was straddled by the 5th or 6th salvo from BISMARCK. One shell of this salvo apparently hit her on the boat deck somewhere near the mainmast, the others may have hit her below the waterline. Very shortly after 0555 a fire was observed somewhere on the port after end of the boat deck of HOOD. We consider it established that this fire was caused by a hit from BISMARCK's 3rd salvo. It burned with a clear flame and appeared to spread and then died down just before 0600. V.A.B.C.S. hoisted a signal ordering a further turn of 20° to port together, (the range at the time being about 16,300 yards) but it was never executed as at 0600 HOOD blew up and sank in under 3 minutes. The board concluded:- 1. That the sinking of the HOOD was due to a hit from BISMARCK's 15" shell in, or adjacent to, HOOD's 4" or 15" magazines, causing them all to explode and wreck the after part of the ship. The probability is that the 4" magazines exploded first. 2. There is no conclusive evidence that one or two torpedo warheads detonated or exploded simultaneously with the magazines or at any other time, but the possibility cannot be entirely excluded. We consider that if they had done so, their effect would not have been so disastrous as to cause immediate destruction of the ship, and on the whole we are of the opinion that they did not. 3. That the fire which was seen on HOOD's boat deck, and in which U.P. and, or 4" magazines, was certainly involved, was not the cause of her loss." REMARKS As a result of this incident additional splinter protection to the magazines of capital ships was arranged where recent experience indicated it to be necessary. As the above water torpedo tubes were a possible source of danger in Battlecruisers the forward sets of tubes were landed from RENOWN and REPULSE.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PRINCE OF WALES 24th May, 1941 D.N.C.4B/R69	Three Direct Hits with 15 inch Three Direct Hits with 8 inch and One Direct Hit with 8 inch or possibly 15 inch delay action fuzed Shell, four of which did not Detonate	6 weeks	PRINCE OF WALES was damaged in the same action as that in which HOOD was sunk. A 15 inch shell struck the forward corner of the compass platform and then passed across the compartment and overboard without detonating. The majority of bridge personnel were killed or wounded. A 15 inch shell struck the starboard aircraft crane and burst just abaft the after funnel. The boat deck and after funnel were extensively damaged by splinters and the type 285 radar office was wrecked. A 15 inch shell perforated the starboard bulge, 28 feet below the waterline and came to rest, without detonating, after striking the protective bulkhead. Immediate flooding of bulge compartment resulted. An 8 inch shell perforated the boat deck, shelter deck and armoured casemate to P.3-5.25 inch mounting, richochetted off the ring bulkhead and finally struck the side of the casemate without detonating. P.3 mounting was temporarily put out of action. An 8 inch shell struck the starboard side below the waterline just abaft the armour and partially detonated about 11 feet inboard. Blast and splinters caused minor damage, and the lower deck was flooded for 60 feet. An 8 inch shell burst on impact with the starboard side 5 feet below the waterline. The sloping armour over the steering compartment was set down, and the after end at lower deck level was flooded for 80 feet. An 8 inch shell (possibly 15 inch) struck the 4 inch H.A.C.S. support and passed overboard without detonating. The port H.A. director was put out of action and the starboard director temporarily out of action. Fighting Efficiency - Seriously impaired. Speed was reduced to a maximum of 26 knots due to flooding. Efficiency of secondary armament was reduced due to damage H.A. directors. Temporary disorganisation of ship control due to bridge casualties. REMARKS The following lessons were learned as a result of this incident. 1. The need for watertight doors to certain important compartments below the middle (armour) deck to be blanked and trunked access provided in lieu. 2. Portable pumps should be splash proof and their overboard discharges modified. 3. The ventilation supply to action machinery and other important compartments was inadequate to prevent excessive temperatures. 4. Boiler room intakes when situated near a damaged funnel are a serious danger to boiler room personnel. 5. The number of electric supply plugs at the ends of the ship was inadequate to meet emergency conditions. 6. A warning telephone system was required to transmit orders swiftly from the D.C.H.Q. to repair stations. 7. H.A. directors were extremely vulnerable to splinters.

BATTLESHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BARHAM 27th May, 1941 D.N.C.4B/R171	One Direct Hit and One Near Miss with 250 kgm delay action fuzed Bombs	2 months	BARHAM was damaged during a dive bombing attack while operating in the Eastern Mediterranean. One bomb detonated on contact with the roof of 'Y' turret. The roof plate (5 inch N.C. armour) was holed 18 inches in diameter and the plate itself lifted and slightly distorted. Extensive but not serious damage was caused to equipment in and around the gun house. Cordite charges in the port gun loading tray were ignited by splinters and a fire started which caused damage to electric cables in the gun house. The fire was under control within 20 minutes. A near miss off the port side abreast 'A' turret extensively damaged the lower bulge which was holed and distorted over an area 20 ft. by 16 ft. Flooding of the bulge caused the ship to heel $1\frac{1}{2}$ degrees to port but this was corrected by the transference of oil fuel. Fighting Efficiency - Not seriously impaired. 'Y' turret and the 0.5" machine gun on the roof of 'X' turret were both out of action. Speed was slightly reduced due to flooding.
WARSPITE 23rd June, 1941	One Near Miss with delay action fuzed Bomb, judged to have been 500 kgm	Nil (Damaged whilst undergoing temporary repairs)	WARSPITE was damaged during an air raid on Alexandria Dockyard whilst undergoing temporary repairs for bomb damage received on 22nd May, 1941. A near miss bomb burst underwater on the starboard side abreast 'A' turret. The upper and lower bulge plating, above and below the waterline, was crushed over a length of 60 feet. Some damage was caused by splinters. The lower bulges were flooded for a length of 90 feet. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NELSON 27th Sept., 1941 D.N.C.4B/R95	One Contact Torpedo (Italian) Dropped by Aircraft	6 months, including refit	NELSON while operating in the Western Mediterranean at 15 knots, was torpedoed forward on the port side at the platform deck level. A hole 30 feet long by 15 feet deep was blown in the outer bottom. Extensive flooding occurred forward and the platform deck was flooded for a length of 75 feet. The torpedo body room was wrecked and the tubes rendered unserviceable. Fighting Efficiency - Not seriously impaired. Speed was restricted to about 15 knots due to flooding and the risk of undue strain on the damaged structure. The main armament although undamaged would only have been used in an emergency to avoid the risk of disturbing the shoring of damaged structure. The underwater torpedo tubes were out of action. REMARKS Modifications were made to both the fixed and portable pumping systems in this class of ship as a result of this incident.

BATTLESHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BARHAM 25th Nov., 1941	Three possibly Four Contact Torpedoes Fired from a Submarine	Sunk	BARHAM while carrying out a sweep in the Eastern Mediterranean with the Battle Fleet, was torpedoed and sunk. Owing to the lack of detailed evidence about this incident the following has been based upon the Report of the Board of Inquiry. "At 1625 three or four torpedoes struck the port side between the funnel and the after turrets. Between the attack and a heavy explosion, four minutes elapsed, by which time BARHAM was on her beam ends, to port. The seat of the explosion was probably abreast 'X' and 'Y' 15 inch magazines, which vented through the upper deck and the ship's side starboard. We are unable to establish the reason for the explosion but it may have been due to a fire, started in the port 4 inch magazine, which spread to the adjacent 15 inch magazine. Although this explosion accelerated the rate of sinking it is our opinion that it was not the primary cause of the foundering of BARHAM. We believe that the ship's port side was blown in over a considerable length which opened her vitals to the sea, thus causing a heavy list to port, a slight pause at an angle of 40°, to continue until she capsized in about 4 minutes. The internal lighting and communications system failed rapidly. The vessel was in a recognised state for cruising with a satisfactory degree of water-tight sub-division. The damage and rapidity of heel was so considerable as to preclude any effective measures to save the ship. The conditions for launching boats or rafts were extremely severe. Certain rafts secured with lashings proved an unsatisfactory feature. No general orders for the conduct of the ship were heard subsequent to her being struck. This was probably due to the failure of the broadcasting system."

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PRINCE OF WALES 10th Dec., 1941	(i) Six, possibly Seven Contact Torpedoes (Japanese) judged to contain 867 lb. Warheads. Dropped by aircraft. (ii) One Direct Hit and several Near Misses probably 250 kgm delay action fuzed Bombs	Sunk	PRINCE OF WALES was sunk off the east coast of Malaya. In the first attack there were two and probably three torpedo hits on the port side and the ship quickly heeled to about 11 degrees with both port engines out of action. The second attack occurred when counterflooding was being carried out. Four torpedoes hit the starboard side, and the ship was brought nearly upright, with a trim aft of about 20 ft. The starboard outer shaft was out of action. In the third attack high level bombing scored a direct hit on the catapult deck, and several near misses. Extensive damage and flooding caused the ship to capsize to port and sink, 96 minutes after the first attack. REMARKS This incident emphasised the following points:- 1. The space at the top of the sandwich protection should not be used for ship purposes. 2. Greater use should be made of steam-driven auxiliaries. 3. Trunked access to important machinery spaces is necessary. 4. Air escape pipes should be fitted with cocks. 5. Side scuttles, ventilation systems, W.T. doors and hatches should be reduced to a minimum. 6. Rapid pumping of spaces immediately inboard of the protective bulkheads is a necessity. 7. Number and distribution of portable pumps needs reconsideration. 8. W.T. bulkheads to be continued as high as possible. 9. 5.25" Ammunition supply should be modified to improve watertightness. 10. Scuppers and drains should be modified to improve watertightness. 11. Question of steam or electrically driven pumps for the steering gear requires review. 12. Number of plummer blocks used on long shafting requires review and bulkhead glands require redesign to remain watertight when the shaft is slightly out of true. 13. Sound powered telephones should be extended and essential services duplicated and made watertight. 14. Damage control communication to be sound powered and independent of the main exchange. 15. Damage control officer required in addition to "heel and trim" officer in D.C.H.Q. 16. D.C.H.Q. must be easily accessible and sectional H.Q. need built-in accommodation. 17. In PRINCE OF WALES the shipwright complement was too small to deal with the damage. 18. Draught indicators are necessary.

BATTLESHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
REPULSE 10th Dec., 1941	(i) One Direct Hit and Several Near Misses probably 250 kgm delay action fuzed Bombs, (ii) Four Contact Torpedoes (Japanese) judged to contain 867 lbs. warheads. Dropped by Aircraft	Sunk	REPULSE was sunk in the same action as the PRINCE OF WALES. The first attack was from pattern bombing at 10,000 feet during which the ship was damaged by one hit and several near misses. The direct hit passed through the port hangar and burst on the armoured deck. As the result of this attack fires were started and steam pipes were fractured, which made conditions between decks very difficult for personnel. In the second attack a torpedo struck amidships on the port side. In the third and final attack three torpedoes struck the ship. Two were on the port side, one of which jammed the rudder. The third hit the starboard side. REPULSE was abandoned and sank 80 minutes after the first attack.
QUEEN ELIZABETH 19th Dec., 1941 D.N.C.4B/R113	A 500 lb. to 1000 lb. Charge placed somewhere between Contact and the sea bed by the crew of an Italian two man Submarine. Depth of water 8 fathoms	17½ months Repaired in U.S.A.	QUEEN ELIZABETH while moored in Alexandria harbour, was damaged by a mine which had been slung under 'B' boiler room by the crew of a two man submarine. The bottom structure under 'B' boiler room was blown up into the ship and similar damage, but to a less extent, occurred under 'A' and 'X' boiler rooms. The damage under the bottom extended over an area of 190 ft. by 60 ft. to include the port and starboard bulges. Immediate flooding occurred in 'A', 'B' and 'X' boiler rooms and the 4.5 inch magazines. 'Y' boiler room and numerous other compartments slowly flooded up to the main deck level. Boilers, auxiliary machinery and associated electrical equipment were severely damaged by the explosion and the subsequent flooding. Main and secondary armament was serviceable, but all hydraulic power was lost. Fighting Efficiency - Seriously impaired. The ship was immobilised and unseaworthy. Main and secondary armament could only have been used with greatly reduced efficiency.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VALIANT 19th Dec., 1941 D.N.C.4B/R115	A 500 lb. to 1000 lb. Charge placed somewhere between Contact and the sea bed by the crew of an Italian two man Submarine. Depth of water 8 fathoms	6½ months	VALIANT while moored in Alexandria harbour, was damaged by a mine which had been slung under the port bulge abreast 'A' turret by the crew of an Italian two man submarine. The lower bulge structure on the port side was holed and blown up into the ship over an area of 60 ft. by 30 ft. and internal damage extended from the middle line up to the bottom of the upper bulge compartments. Flooding immediately occurred in the lower bulge, inner bottom, 'A' shell room and magazine and in adjacent compartments up to the lower deck level. Outside the flooded area, minor damage to electrical equipment occurred due to shock. No damage occurred to the main or auxiliary machinery. The lower portion of the revolving structure of 'A' turret was distorted. Fighting Efficiency - Seriously impaired. 'A' turret was out of action. Had it been necessary for the ship to proceed to sea there would have been a reduction in speed due to the flooding and the risk of undue damage to structure. REMARKS In view of the increased allowance of portable electric pumps it was found necessary for provision to be made for the fitting of more connecting boxes to supply power for pumping in an emergency.

BATTLESHIPS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RAMILLIES 30th May, 1942 D.N.C.4B/R125	One Contact Torpedo. Fired by Japanese Midget Submarine	12 months	RAMILLIES while at anchor in the inner harbour of Diego Suarez Bay, was struck by a torpedo on the port bulge just forward of 'A' mounting. The bulge plating was holed for 30 ft. by 30 ft. and the outer bottom for 20 ft. by 16 ft. Internal damage extended inboard to the middle line and from the hold to the lower deck level. Flooding occurred in the magazines and shellrooms of 'A' and 'B' guns, the forward 4 inch magazines, H.A.C.P. and other adjacent compartments up to the main deck level. Extensive damage was caused to gunnery and electrical equipment due to flooding. Outside the limits of the immediate effects of the torpedo only minor damage occurred. All lighting and power forward of 'B' turret and all telephone communications failed. No damage occurred to the main engines but auxiliary machinery suffered minor damage. Fighting Efficiency - Seriously impaired. The efficiency of the main and secondary armaments was greatly reduced due to flooding. Had RAMILLIES been at sea there would have been a reduction of speed due to flooding and the risk of further damage to the structure. REMARKS This incident emphasised the following points. 1. The need for torpedo embarkation hatches to be replaced by half hatches of stronger construction. 2. The value of increasing the number of hose connections that could be fitted to scupper pipes. 3. The three 8 feet lengths of suction hose provided for each portable pump were found to be inadequate and an extra length of hose was required.
RODNEY 12th Aug., 1942	One Near Miss Bomb	1 month	RODNEY while operating in the Mediterranean was damaged by a near miss bomb which fell abaft the stern. Minor damage was caused to the rudders and the tubes of one superheater were found to be defective. Fighting Efficiency - Slightly impaired. Maximum speed was restricted to $18\frac{1}{2}$ knots due to the boiler defects.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WARSPITE 16th Sept., 1943 D.N.C.4B/R273	One Direct Hit and One Near Miss with delay action fuzed, radio corrected Bomb P.C. 1400 kgm type F.X.	7 months (Partial repair of damage)	WARSPITE was damaged while in action off the Salerno beaches at 10 knots. A direct hit on the boat deck just abaft the funnel, perforated various decks, passed through No.4 boiler room and finally detonated in the double bottoms. The outer bottom was holed for a length of 20 ft. and for a width of 7-14 ft. and the inner bottom was blown upwards over this area. No.4 boiler room was wrecked. Main transverse bulkheads, forward, abaft and between the boiler rooms were buckled and damaged by splinters. A near miss on the starboard side burst underwater near the bottom of the bulge abreast No.5 boiler room, corrugating the inner and outer bottom plating under this boiler room. The bulge plating was also ruptured and distorted. Immediate flooding occurred in Nos. 2, 3, 4, 5 and 6 boiler rooms, the double bottom air spaces and in the O.F. tanks, lower bulge and the cable passages near machinery spaces. Slow flooding was controlled in both engine rooms, No.1 boiler room, two dynamo rooms, shaft passages and various other compartments abreast the machinery spaces. A list to starboard reached a maximum of 4 degrees. All boilers were damaged by shock and flooding and the feed water was contaminated. The main turbines, although unusable through loss of steam, were not materially damaged. Electrical power failed through the lack of steam but essential services were supplied by diesels. W/T and radar equipment suffered through the loss of aerials, flooding and shock. Fighting Efficiency - Seriously impaired. The ship was immobilised through the loss of steam and W/T and radar equipment were out of action. Main armament was out of action due to the loss of hydraulic power.
DUKE OF YORK 26th Dec., 1943	One Direct Hit with 11 inch Shell and one direct hit with Shell judged to have been 5.9 inch both of which did not detonate	1 month	DUKE OF YORK was damaged while in action against the SCHARNHORST. A direct hit with an 11 inch shell passed through the mainmast and its port strut without detonating. Approximately half of the mainmast sectional area and rather more of the strut section in the path of the shell were destroyed. A direct hit with a 5.9 inch shell passed through the port strut of the foremast without detonating, destroying rather less than half of the sectional area of the strut. Fighting Efficiency - Slightly impaired. The efficiency of the radar equipment was reduced due to damaged aerials. REMARKS In spite of adverse weather conditions, the tripod masts did not carry away.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WARSPITE 13th June, 1944 D.N.C.6/R317	One Ground Mine in 17 fathoms, probably Acoustic or "Sammy", type G.C. Charge about 1500 lbs.	2 months (Partial repair of damage)	WARSPITE was on passage from Portsmouth to Rosyth at 16 knots when an explosion occurred off the port side abreast 'Y' turret. Corrugation of the port bulge plating extended over 150 feet, abreast the engine rooms, gearing rooms and after magazine group. Over this area the outer bottom, below the bulge, was corrugated between frames, to a maximum depth of 3 inches. Between 'X' and 'Y' turrets the bulge structure was forced inboard a maximum of 2 feet. Minor buckling occurred for 90 feet on the starboard bulge plating abreast the gearing rooms and after magazine group. Minor damage to the inner bottom was also sustained. Over the damaged area extensive flooding of the port bulge occurred with minor flooding in the double bottoms. A list of $4\frac{1}{2}$ degrees to port was corrected by counter flooding and the transference of oil fuel. Extensive shock damage affected the main and auxiliary machinery. The port outer shaft seized up and the port inner shaft was out of action with several plummer blocks fractured. The fixed and sliding feet of the port and starboard inner H.P. turbines were fractured and the port inner turbine, gearing and thrust block were put out of action. Shock damage to electrical equipment, W/T and radar sets, also occurred. Fighting Efficiency - Seriously impaired. Both port shafts were out of action but the ship was able to proceed under her own power at 10 knots on the two starboard shafts. 'Y' turret was adjudged safe for single gun firing only, due to the weakened condition of the surrounding structure.
NELSON 18th June, 1944	Two Ground Mines in 15 fathoms, probably Acoustic type. Charge about 1500 lbs.	$6\frac{1}{2}$ months, including refit. (Repaired in U.S.A.)	NELSON was proceeding from the Normandy coast to Spithead at 16 knots when two mines exploded almost simultaneously, one about 50 yards to starboard abreast the bridge and the other further forward under the bottom. Double bottom tanks were damaged and the outer bottom plating corrugated from abreast 'A' turret to the fore end of the forward engine room, particularly between the port and starboard second longitudinals. Forward of 'A' turret, the double bottom compartments below the forward store rooms were damaged. Uncontrolled flooding occurred in one rapid flood compartment; and the remainder abreast the damage had slow controlled flooding. Several double bottom oil fuel tanks were damaged and made common. A list to starboard of 3 degrees, due to flooding of some wing spaces was reduced to 1 degree by pumping out the starboard rapid flood compartments. Extensive, but principally minor shock damage affected secondary armament directors, A.D.O. sights, radar, gyro compasses and the 16 inch fire control equipment. Fighting Efficiency - Not seriously impaired. The ship was operationally fit within 24 hours but permanent repairs to the damaged outer bottom were essential at a later date.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COURAGEOUS 17th Sept., 1939	One probably two, possibly three Contact Torpedoes Fired from Submarine	Sunk	COURAGEOUS was carrying out offensive air operations against enemy submarines in the North Atlantic at 18 knots when she was torpedoed on the port side. The ship was hit by one torpedo at a position well forward of the bridge and probably by another torpedo almost immediately afterwards in the vicinity of the boiler rooms. There was a complete breakdown of electrical power as a result of this attack. The ship immediately heeled about 10 degrees to port and this increased rapidly to 40 degrees. COURAGEOUS trimmed heavily by the bow, righted herself and eventually sank 20 minutes after the first hit. REMARKS This incident emphasised the following points:- 1. Ships to be kept wateright up to about 8 feet above the deep waterline. 2. An efficient secondary lighting system is a necessity.
FURIOUS 18th April, 1940	Two Near Misses judged to have been 100 kgm delay action fuzed Bombs	4 days	FURIOUS while operating off Norway was damaged by two near miss bombs which fell about 15 yards to port. No damage was caused to the structure but some of the blades to the starboard inner H.P. turbine were cracked which necessitated the uncoupling of one shaft to avoid further damage. Fighting Efficiency - Slightly impaired. The maximum speed was reduced by the loss of one shaft.
GLORIOUS 8th June, 1940	Direct Hits with probably 11 inch and possibly 8 inch Shells	Sunk	GLORIOUS, while returning from Norway, escorted by two destroyers, was engaged by the German ships SCHARNHORST and GNEISNAU. The first salvo which caused serious damage perforated the flight deck and burst in the hangar. Small arms ammunition exploded and a fire was started in the hangar but this was soon got under control. The next hits were on and near the bridge as a result of which the Commanding Officer and most of the bridge personnel were killed. Further hits followed rapidly and one salvo which struck on or abaft the after centre engine room caused serious damage. The ship began to lose speed and circled to port with a list to starboard. GLORIOUS eventually rolled over to port and sank about one hour after she was first attacked. REMARKS This incident emphasised the need for the boat hoists and winches to be modified and sufficient rope to be provided to enable boats to be lowered when the ship has considerable heel.

AIRCRAFT CARRIERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ILLUSTRIOUS 10th Jan., 1941 D.N.C.4B/R92	Five Direct Hits and One Near Miss with 500 kgm delay action fuzed Bombs, one of which did not detonate. One Direct Hit with 1000 kgm delay action fuzed Bomb and One Direct Hit with probably 500 kgm or possibly 250 kgm delay action fuzed Bomb	10½ months, including 6 months permanent damage repairs in U.S.A.	ILLUSTRIOUS was escorting a convoy in the Mediterranean when she was subjected to a sustained dive bombing attack. Bomb No.1 hit and destroyed S.2 pom-pom but otherwise caused only minor damage in the vicinity of burst. Bomb No.2 perforated the forward end of the flight deck and passed overboard to explode about 10 feet above the waterline. Extensive splinter damage was caused to compartments near the waterline and many of these were flooded. Splinters also caused a fire in the lamp room. Bomb No.3 was a direct hit which exploded in the after lift well about 10 to 20 feet below the flight deck. This caused severe damage to the lift structure and electrical equipment. Bomb No.4 (1000 kgm) perforated the armoured flight deck and exploded about 10 feet above the hangar deck. Serious damage was caused to the forward lift and the surrounding hangar deck structure. The hangar fire curtains were blown away and a serious fire was started in the hangar. Bomb No.5 was a direct hit at the after end of the after lift so increasing the damage already sustained from Hit No.3. Bomb No.6 perforated P.1. pom-pom platform and passed through the ship and then overboard to strike the side armour without detonating. A fire was started in two mess decks. Bomb No.7 - possibly 250 kgm - was a direct hit in the after lift well and this completed the destruction of the lift structure. Bomb No.8 was a near miss off the starboard side. This caused minor damage to the structure and slight flooding. Fighting Efficiency - Seriously impaired. The ship was out of action as an aircraft carrier. Severe damage to the stern put the steering gear out of action and caused the ship to be temporarily out of control. ILLUSTRIOUS returned to Malta steered by main engines. REMARKS This incident emphasised the following points. 1. Secondary positions for hangar spraying are required. 2. Scuppers in hangars should be provided with guards to prevent choking by debris. 3. Steering gear compartments should be provided with trunked access. 4. Steel hangar fire curtains should be replaced by fearnought or asbestos cloth. 5. Improved arrangements are necessary for fighting fires in the overhead stores in the hangar.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ILLUSTRIOUS 16th Jan., 1941 D.N.C.4B/R92	One Direct Hit with 500 kgm delay action fuzed Bomb and several Near Misses with Bombs of unknown size.	Nil (damaged whilst undergoing temporary repairs)	ILLUSTRIOUS while at Malta undergoing temporary repairs to bomb damage was subjected to further air attacks. The direct hit perforated the unarmoured portion of the flight deck aft and exploded above the gallery deck. Further serious damage was caused to the structure at the after end and a hole 15 feet diameter was blown in the hangar deck. The near misses caused only minor damage. Fighting Efficiency - Further impaired.
ILLUSTRIOUS 19th Jan., 1941 D.N.C.4B/R92	One Near Miss with 500 kgm delay action fuzed Bomb	Nil (Damaged whilst undergoing temporary repairs)	ILLUSTRIOUS was again damaged during further air attacks on Malta. A near miss close off the port side pushed in the bottom of the side armour about 3 inches and dished the side plating and framing a maximum of 5 feet over a length of 75 feet. The protective bulkhead was undamaged but flooding outboard of this caused the ship to heel 5 degrees to port. The port boiler room was put out of action as a result of shock damage to the brickwork and pipe systems. The sliding feet of the port H.P. and L.P. turbines were also fractured and some auxiliaries were damaged. Fighting Efficiency - Further impaired. As a result of this attack the port engine was out of action. After temporary repairs to the damage from all attacks had been completed, ILLUSTRIOUS proceeded to Alexandria under her own power at 23 knots.
FURIOUS 16th April, 1941	Two Near Miss Bombs	Nil (damaged whilst undergoing repairs)	FURIOUS was straddled by a stick of four bombs while berthed at Victoria Wharf during an air raid on Belfast. Damage to the structure was slight. The superstructure and the associated electrical leads were damaged by splinters. Fighting Efficiency - Not Impaired.

AIRCRAFT CARRIERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FURIOUS 5th May, 1941	One Direct Hit with delay action fuzed Bomb	7 days	FURIOUS was again damaged during another air raid on Belfast. A direct hit perforated the flight deck just abaft the forward lift, passed through the upper deck and exploded in the lower hangar. Damage to structure from blast and splinters was not severe but the spraying arrangements in the lower hangar were damaged and the fire curtains were destroyed. A fire which started in the hangar was soon under control. Fighting Efficiency - Not seriously impaired.
PEGASUS 5th May, 1941	One Near Miss with direct action fuzed Bomb	Nil (damaged whilst undergoing repairs)	PEGASUS was damaged by a near miss bomb off the port side amidships during an air raid on Belfast. The whole of the port side above the waterline was perforated by splinters which also caused minor damage to fittings. Oil fuel from damaged tanks above the waterline leaked into the fairway and the oil became ignited. Fighting Efficiency - Not seriously impaired.
FORMIDABLE 26th May, 1941 D.N.C.4B/R107	Two Direct Hits with 1000 kgm armour piercing delay action fuzed Bombs	6 months, including 3 months permanent damage repairs in U.S.A.	FORMIDABLE while operating off Scarpanto was attacked by dive bombers. One bomb struck the forward end of the flight deck and passed down through the ship to detonate below the hangar deck close to the starboard side. A hole 52 ft. by 14 ft. was blown in the side plating, between the upper and lower gallery decks, and internal structure was seriously damaged. A fire which started in the vicinity of the burst was quickly under control. A second bomb struck 'X' gun bay, passed out through the ship's side starboard and burst underwater about 18 feet from the ship's side. The upper arm of the starboard 'A' bracket was fractured but otherwise only minor damage occurred in the path of the bomb through the ship. Fighting Efficiency - Seriously impaired. 'X' mounting was out of action. The forward aircraft lift and two forward groups of guns could only have been used in an emergency. The speed was reduced to 20 knots in fair weather.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARK ROYAL 13/14th Nov., 1941	One Torpedo probably Contact Fired from Submarine	Sunk	ARK ROYAL was returning to Gibraltar at 22 knots after completing an operation, when she was torpedoed and sunk. The following is based upon the report of the Board of Enquiry. "An explosion occurred under the bottom on the starboard side abreast the island structure. A hole approximately 130 ft. by 30 ft. was reported to have been blown in the bottom plating. The air spaces, oil tanks and watertight compartments on the starboard side, together with machinery spaces and other main compartments in the vicinity of the explosion flooded rapidly. The ship immediately heeled 10 degrees to starboard. Flooding of the main switchboard room and telephone exchange caused the failure of all lighting, electrical power and telephones. No major damage occurred to main or auxiliary machinery. The telegraphs from the Bridge to the Machinery Control Room were jammed, and the heel had increased to 17 degrees before the engines could be stopped. Counterflooding was carried out and reduced the heel to 14 degrees. Half an hour after the explosion the majority of the ship's company were disembarked. Electric power, feed water and pumps were supplied by an escorting destroyer, and the ship was taken in tow at 2 knots. Steam was raised in the port boiler and lighting was restored. The starboard Engine Room flooded slowly, and the heel increased to 17 degrees. Flooding of the boiler uptakes caused a major fire in the port boiler air casing, which led to the evacuation of the boiler room and to total loss of power. When the heel had increased to 27 degrees, orders were given to abandon ship. 12 hours after being hit, all personnel had been withdrawn, and the heel had increased to 35 degrees. The ship capsized and sank two hours later." REMARKS This incident emphasised the following points:- 1. It is essential that the training and organisation of Damage Control personnel should be of the highest possible standard in order to deal with an emergency of this type. 2. Individual boiler uptakes and fan intakes should be carried higher where practicable. 3. Machinery should be operated in units irrespective of numbers of boilers alight. 4. Positions of main switchboard and telephone exchange should be reviewed to render them less liable to flooding. 5. Control of the ring main and thereby distribution of electrical power requires review to avoid false operation of ring main switchgear if the switchboard is flooded or control wiring is damaged. 6. Diesel driven dynamos are necessary in all large ships. 7. Direct telephone communication between engine room and bridge with an alternative power supply must always be available. At least one sound-powered telephone between these positions and also the emergency steering positions is desirable. 8. Counterflooding is necessary in the event of heavy (6 degrees) heel.

AIRCRAFT CARRIERS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUDACITY 21st Dec., 1941	Three Contact Torpedoes Fired from Submarine	Sunk	AUDACITY while operating in the North Atlantic, sank after being hit by three torpedoes. At 2035 one torpedo struck abreast No.5 hold. The immediate flooding of the shaft tunnel and subsequent flooding of the engine room immobilised the ship within 10 minutes and caused her to settle aft until the stern was just awash. At 2145 two more torpedoes struck the port side, one abreast the bridge and the other between the bulge and the first hit. AUDACITY broke up and sank about 10 minutes after the second attack.
HERMES 9th April, 1942	Several Direct Hits with Bombs, judged to have been 100 kgm	Sunk	HERMES while operating south of Trincomalee at 23 knots was attacked and sunk by Japanese aircraft. At 1035 the first bombs struck the ship, hits being registered aft and on the forward aircraft lift. From this time on HERMES was repeatedly hit. Both boiler rooms were put out of action and the forward aircraft lift was wrecked. At 1050 the ship was immobilised, on fire, and had a heavy list to port. At 1055 HERMES capsized to port and sank.
EAGLE 11th Aug., 1942 D.N.C.4B/R165	Four Contact Torpedoes Fired from Submarine	Sunk	EAGLE while operating in the Western Mediterranean at 13 knots was sunk as the result of four torpedo hits. The first explosion occurred on the port quarter and this was followed within 10 seconds by three other explosions. All torpedoes struck the port side between P.2 and P.3 guns. After the first hit the ship heeled 5 degrees to port and this increased to 15 degrees after the fourth hit. Evidence indicated that hits occurred in the vicinity of the port wing engine room but no damage occurred in the centre and starboard engine rooms. 'A', 'C' and 'D' boiler rooms were flooded and in each case the port wing bulkhead collapsed. EAGLE finally settled bodily with a 30 degree heel and sank 6 minutes after the first torpedo hit.
VICTORIOUS 12th Aug., 1942	One Direct Hit with Bomb which did not Detonate	Nil	VICTORIOUS while escorting a convoy to Malta was hit by a bomb which struck the flight deck and then bounced overboard without detonating. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INDOMITABLE 12th August, 1942 D.N.C.4B/R123	Two Direct Hits and three Near Misses with 500 kgm delay action fuzed Bombs	6 months	INDOMITABLE was subjected to an attack by enemy aircraft while operating South West of Sicily at 20 knots. Hit No.1 landed near the forward lift and perforated the upper gallery deck and exploded above the upper hangar deck. A hole 20 ft. by 12 ft. was blown in the upper gallery deck and one 20 ft. by 28 ft. in the upper hangar deck. Severe structural and splinter damage was caused between the flight and lower gallery decks and inboard to the middle line. The forward lift canted up 5 ft. on the starboard side. There was a minor fire in the hangar and the R.U. ammunition to 'A' 1 and 'A' 2 4.5 inch guns ignited. Hit No.2 landed abaft the after lift, perforated the upper gallery deck, and exploded just above the upper hangar deck. The upper gallery for a width of 20 ft. and the upper hangar for 16 ft. were destroyed and a large hole was blown in the flight deck. The lower gallery deck and the lift structure sustained minor damage. A small fire was started near the torpedo body room but the warheads were undamaged. Near Miss No.1 grazed the port pom-pom director and exploded 5 ft. from the hull at the upper hangar deck level. The side plating between the lower and upper gallery decks was destroyed. Structural and splinter damage extended for 52 ft. inboard. Near Miss No.2 exploded 25 ft. underwater to port abreast C.2 O.F. tank. The ship's side was blown in over an area of 40 ft. by 20 ft. and minor internal damage was sustained. The wing compartments in the vicinity of the explosion were flooded causing a heel of 8° to port. This was corrected by counterflooding. Near Miss No.3 exploded underwater off the port quarter causing minor structural damage and a few splinter holes through the hull above the waterline. Fighting Efficiency - Seriously impaired. The forward lift, 'A' 1 and 'A' 2-4.5 inch mountings and 'B' director were out of action. The after lift was temporarily out of action. REMARKS This incident emphasised the following points:- 1. The design of aircraft lifts to operate under conditions of considerable misalignment of the transmission gear, proved invaluable. 2. War experience indicates no technical reason for restricting the operation of lift platforms whilst in action. 3. Keeps to electrically operated lifts to be abolished. 4. Allowance of spray nozzles to be increased to 30% of the total number of branch pipes (A.F.O.3023/42). 5. Design of existing leather joints of indicator test plugs to be improved. 6. To simplify the method of securing manhole covers where single wedges are fitted, the positions and direction of movement of clips should be painted on the manhole covers and stops fitted in order to prevent the openings being closed with the clips on the wrong side. 7. W.T. doors and hatches to be strengthened (A.F.O's 3905/42 and 5051/42). 8. Separate sea suctions for hangar spray pumps arranged for in later ships. 9. Portable diesel driven pumps to be supplied to aircraft carriers.

AIRCRAFT CARRIERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARGUS 10th Nov., 1942 D.N.C.4B/R191	One Direct Hit with 250 kgm direct action fuzed Bomb and near misses delay action and direct action fuzed 1000 and 250 kgm Bombs	1 month	ARGUS while operating off Algiers at 18 knots was hit by a 250 kgm bomb on the safety netting at the after end of the flight deck. The flight deck and the cantilever support were fractured and damaged by blast in the vicinity of the burst. The port crane and the hangar fire curtains were damaged by blast and splinters. The port side of the smoke duct was blown away. Minor damage was caused to electrical equipment P.5 and 6 Oerlikons were damaged by splinters and out of action. One aircraft was destroyed and two seriously damaged. Numerous near misses within 50 yards of the ship caused four girdle tanks on the port side and one on the starboard side to be strained and leaking. The ship listed approx. $3\frac{1}{2}$ degrees to port. Fighting Efficiency - Slightly impaired. The ship was able to maintain full speed and operate aircraft. Difficulty was experienced in operating the Q.D. armament due to funnel gases being discharged on to the quarter deck.
AVENGER (Escort Carrier) 15th Dec., 1942	One Contact Torpedo Fired from Submarine	Sunk	AVENGER whilst escorting a convoy west of Gibraltar, was struck by a torpedo abreast the bomb room. The bomb room exploded and was accompanied by a vivid red flash along the starboard side which lasted for about 2 seconds. The ship broke up and sank within 3 minutes of being torpedoed. REMARKS Longitudinal bulkheads should be fitted between the bomb room and ship's side for all ships of this class.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INDOMITABLE 16th July, 1943 D.N.C.4B/R278	One Contact Torpedo dropped by Aircraft	8½ months Repaired in U.S.A.	INDOMITABLE whilst operating in the Mediterranean was struck by a torpedo abreast the after end of the boiler room on the butt of the lower edge of the 180 lbs. 'C' side armour. The outer bottom was holed for 25 feet vertically and 28 feet longitudinally and severe buckling extended for a further 60 feet. The corner of one armour plate broke and four pieces were projected into the ship. The structure of the wing protection compartments was wrecked. The main longitudinal protective bulkhead at the after end of the boiler room was bulged inwards and holed over an area 8 feet by 6 feet by fragments of armour. The main deck was wrecked in the vicinity of the explosion. The ship heeled 12½ to port but this was corrected by counterflooding. Immediate flooding occurred in the port boiler room, protective wing spaces abreast and for 36 feet abaft the boiler room and the boiler room uptake space on the main deck. Minor flooding on the lower hangar deck and inboard of the protective bulkhead abaft the boiler room occurred. The port boiler was wrecked by fragments of armour, and some auxiliary machinery was seriously damaged. The port H.P. and L.P. compressor rooms were also wrecked. Lighting, power and communications were out of action in the damaged area. Fighting Efficiency - Seriously impaired. The port boiler room was out of action and the centre boiler room was temporarily abandoned due to smoke and fumes. The speed was reduced due to damage and flooding. REMARKS This incident emphasised the following points:- The bottom tier of armour should be non-cemented quality to reduce the risk of breaking up when struck by a torpedo. Dwarf bulkheads between the funnel uptakes and air intakes should be continued and made watertight to the lower gallery deck level.

AIRCRAFT CARRIERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SLINGER (Escort Carrier) 5th Feb., 1944 D.N.C.4B/R297	One Ground Mine on 17 fathoms probably type G.C. or G.G. Charge about 1500 lbs.	8½ months	SLINGER was on passage from Sheerness to the Clyde at 18 knots when an explosion occurred under the bottom in way of the engine room. The outer bottom was seriously damaged abreast the cofferdams between the reserve feed tanks and oil fuel tanks under the engine room. The plating was buckled, split and holed in many places, the largest opening being 7 ft. by 2 ft. From the middle line to just above the port bilge keel, the plating was corrugated between frames under and fore and aft of the engine room, the total damaged length being about 100 feet. The starboard plating was slightly buckled. The rudder was lifted ¾ inch. Uncontrolled flooding included No.3 oil fuel tank No.4 starboard reserve feed tank, pipe tunnel and cofferdams. Leakage occurred into the engine room through a cracked main circulator inlet but was later controlled. The ship heeled 5 degrees to port. Extensive shock damage affected the main and auxiliary machinery. The turbine casings were displaced and the main circulator inlet and fire shaft bearings were fractured. The boilers were shut down due to contamination of the feed water and the feed pumps were damaged and out of action. Extensive shock damage occurred to the electrical installations. The breakers of the turbo generators "came off" and the power temporarily failed, essential services being supplied by diesels. Armament, radar and W/T equipment sustained extensive shock damage. Fighting Efficiency - Seriously impaired. The ship was immobilised due to the loss of steam and shock damage to the main engines. Aircraft could have been landed but not operated. Fighter direction was out of action due to radar damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NABOB (Escort Carrier) 22nd August, 1944 D.N.C. N6/R324	One Contact Torpedo Fired from Submarine	Indeterminate (Ship placed in reserve)	NABOB was operating in the North Sea during a Fleet Air Arm attack on TIRPITZ at 15 knots when a torpedo struck the starboard side about 50 feet abaft the engine room in the vicinity of the forward bomb room. A hole was made in the ship's side, 32 feet long by 33 feet deep. The internal structure was wrecked over a length of 36 feet from keel level to the second deck and inboard as far as the middle line. A length of 150 feet between the after bulkhead of the engine room and the fore bulkhead of the after peak was open to the sea. All but two of the after O.F. tanks, the shaft tunnel and the after magazines and bomb rooms were flooded. The ship listed 7 degrees to starboard. This was later reduced to two degrees by the transference of oil fuel. All engine room auxiliaries were stopped as a result of the failure of all electrical power. The main engines were stopped and all boilers were shut down. The engine room was temporarily evacuated owing to the presence of fumes and steam. Fighting Efficiency - Seriously impaired. The ship was later able to proceed a distance of 1090 miles to port under her own power at an average of 10 knots. The ability to operate aircraft was seriously reduced due to the after aircraft lift being out of action.

AIRCRAFT CARRIERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
THANE (Escort Carrier) 15th Jan., 1945	Probably one Non-Contact Acoustic Homing Torpedo Fired from Submarine	Indeterminate (Ship placed in reserve)	THANE was ferrying ammunition and aircraft from Northern Ireland and was nearing the Clyde Light vessel at 17 knots when an explosion occurred close to the ship's starboard side, abreast the after magazines and about 6 ft. below the waterline. The starboard side plating for 48 feet forward of the after peak tank and from 2 ft. above the keel to the underside of the 5 inch gun sponsor was blown inboard a maximum distance of 25 ft. and over this area the internal structure was wrecked or seriously damaged. The port side bottom plating was only slightly corrugated and no major damage to the hull structure occurred outside these limits. The hangar deck was fractured in two places on the port side but otherwise it was not seriously damaged. The extreme after end of the flight deck was fractured for 9 ft. longitudinally at about the middle line. The starboard after corner of the flight deck, the catwalk and the secondary steering position were set up bodily for about 6 feet. The after aircraft lift was distorted and fixed in the 'up' position. The after end was flooded for approximately 80 feet, including the after peak tank, shaft tunnel, after group of oil fuel tanks, magazines and crew spaces. Minor flooding thro' the fractured side plating into the engine room was controlled. The explosion disconnected and distorted the propellor shaft. The starboard after 5 inch gun and sponson were torn away and missing. Aircraft stowed on the hangar deck were damaged by bumping subsequent to the fracture of their holding down wires. Fighting Efficiency - Seriously impaired. The ship was immobilised by the damaged shafting. She was unable to fly off her aircraft but could probably have used the catapult in an emergency. The after magazine group was flooded and one 5 inch gun was out of action. The after aircraft lift was also out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INDEFATIGABLE 1st April, 1945	Hit by one Japanese Suicide Plane (Zeke) which carried one 250 kgm direct action fuzed Bomb	1 month	INDEFATIGABLE was operating with the British Pacific Fleet off Okinawa when a suicide plane struck her flight deck, abreast the foremost barrier, at the junction of the deck and the island structure. A bomb carried in the plane exploded in contact with the armoured flight deck and blew a hole 12 ft. by 7 ft. in the base of the island structure and dished the flight deck armour downwards about 3 inches in the vicinity of the bomb burst. A small portion of the flight deck, the sick-bay and briefing room, two radar offices and No.2 R/T office were wrecked by blast and splinters. The foremost barrier stanchion and deck fitting were smashed and the other two barriers were rendered temporarily unserviceable A small fire which started in the roof of the upper hangar, was got under control in 15 minutes. The landing-on of planes was recommenced in 50 minutes after the explosion. Fighting Efficiency - Slightly impaired. The flight deck was temporarily put out of action until the debris from the crashed plane could be cleared away.
ILLUSTRIOUS 6th April, 1945	Hit by one Japanese Suicide Plane (Judy)	Nil	ILLUSTRIOUS was operating with the British Pacific Fleet off Okinawa when her close range armament was brought to bear on a suicide plane attempting to crash on to the ship. Several pieces of the aircraft were seen to fall away and as it crossed the ship, the port wing came off and the plane generally broke up. The starboard wingtip hit the type 272 radar aerial lantern and the aircraft crashed into the sea 50 yards clear of the ship's starboard side, followed closely by an explosion. The radar lantern was the only item damaged. Two aircraft on the flight deck were damaged by blast from the explosion and a heavy fall of water from the splash. Fighting Efficiency - Not impaired. The type 272 radar was put out of action.

AIRCRAFT CARRIERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORMIDABLE 4th May, 1945	Hit by one Japanese Suicide Plane (Zeke) which was thought to have carried one 250 kgm S.A.P. Bomb	Nil immediately. See Page 36	FORMIDABLE was operating with the British Pacific Fleet off Sakishima (near Formosa) at 20 knots when a suicide plane crashed on to her flight deck, amidships abreast the island structure. It was considered that a bomb was released just before impact. The armoured flight deck was perforated by a hole 2 feet square and depressed over an area of 24 ft. by 20 ft. to a maximum of 2 ft. An extensive portion of the port side of the island structure was damaged by splinters. The fire curtains between A and B hangars were damaged. The foremost aircraft barrier was distorted and rendered unserviceable. A splinter from the armoured flight deck passed through the hangar, downtakes and centre boiler room and came to rest in an inner bottom oil fuel tank, after having severed several steampipes in the centre boiler room, which had to be temporarily evacuated due to escaping steam. One aircraft on the flight deck was blown overboard and another set on fire by the crashed plane. Eleven other aircraft were damaged beyond repair. The fire was got under control in 20 minutes. All radar sets were temporarily put out of action, mainly by blast and splinter damage to the aerials. Fighting Efficiency - Temporarily impaired. Speed was temporarily reduced to 24 knots by the evacuation of the centre boiler room. All radar sets were temporarily out of action. Aircraft could not be operated until temporary repairs had been made to the flight deck and the safety barrier. These repairs took about 5 hours to complete.
INDOMITABLE 4th May, 1945	Hit by one Japanese Suicide Plane (Zeke or Judy)	Nil	INDOMITABLE was operating with the British Pacific Fleet off Sakishima (near Formosa) when a suicide plane, while diving on to her from her starboard quarter, was repeatedly hit by close range weapons and was on fire when it hit her flight deck a glancing blow abreast the after end of the island structure. It then skidded along the deck, passed over the top of 'B' 4.5 inch director and P.1 pom-pom director, and over the port side. The fore end of the ship was littered with pieces of the damaged aircraft and engine, but P.1 pom-pom director and the aerial array of 'B' 4.5 inch director were only slightly damaged. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VICTORIOUS 9th May, 1945	Hit by two Japanese Suicide Planes (Zekes) one of which carried a direct action fuzed Bomb	1 Month	VICTORIOUS was operating with the British Pacific Fleet off Sakishima Gunto, near Formosa when she was attacked from her starboard quarter by two suicide planes. The first plane struck the accelerator on the flight deck, between the forward aircraft lift and B.2 Turret, and disintegrated when the bomb it carried detonated. The explosion depressed the armoured flight deck over an area 12 ft. by 12 ft., the deck plating at the edge of the armour was pierced and the frames and bulkheads immediately below, on the upper gallery deck in B.2 turret working space were damaged. Fires were started among debris, flotanets and paintwork on the flight deck and in the turret working spaces by damaged electric circuits, but these were soon brought under control. 'B' group of 2 - 4.5 inch turrets were out of action temporarily by damage and casualties among the guns' crews. The second plane was on fire when it crashed through the after aircraft park. It bounced over the port 40 m.m. twin mounting and its Mk.51 director, and then dived into the sea about 200 yards off the port beam. The Mk. 51 director was destroyed. A minor fire was started on the flight deck by debris from the suicide plane. Six aircraft on the flight deck were damaged; two beyond repair. Fighting Efficiency - Slightly impaired. The aircraft accelerator, 40 m.m. Mk. 51 director and one 4.5 inch gun were put out of action. The ship could have landed aircraft immediately and have been fully operational without the accelerator, in twelve hours. Flying-off operations were commenced in about one hour.

AIRCRAFT CARRIERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORMIDABLE 9th May, 1945	Hit by one Japanese Suicide Plane (Zeke or Jill) which carried a direct action fuzed 250 lb. Bomb or Shell	1 Month	FORMIDABLE was operating with the British Pacific Fleet off Formosa at 22 knots, when a suicide plane flew in from astern and crashed on her flight deck slightly to starboard and abreast the after end of the island structure. The bomb or shell which it carried partially detonated on impact with the armoured flight deck. The flight deck was depressed a maximum of $4\frac{1}{2}$ inches over an area of 10 ft. by 10 ft. and a deep beam under was distorted and set down about 2 inches. Blast and splinters damaged the island structure. Six aircraft on the flight deck were wrecked by blast or fire and one was blown on top of P.3 pom-pom. The flight deck fires were extinguished in 25 minutes. Fires in the hangar and torpedo parting space which were started by petrol from the suicide plane were soon brought under control. Blast and splinter damage to radar aerials was temporarily repaired within 48 hours. The after portion of the upper hangar was sprayed as a precautionary measure against fire and ten aircraft were thereby rendered unserviceable. Fighting Efficiency - Not seriously impaired. Two pom-poms were temporarily put out of action. Sixteen aircraft were damaged, six of which were wrecked and of no further operational use.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AURORA 26th Sept., 1939	One glancing blow and several near misses probably delay action fuzed 50 and 250 lbs. Bombs	Nil	AURORA while operating in the North Sea in company with SHEFFIELD was bombed by enemy aircraft. Slight structural damage was caused and also minor damage to the mantel plate of 'B' Turret. Fighting Efficiency - Not appreciably impaired. 'B' Turret able to be trained and elevated.
SHEFFIELD 26th Sept., 1939	Several Near Misses from delay action fuzed 250 and 50 lb. Bombs	Nil	SHEFFIELD while operating in the North Sea in company with AURORA was bombed by enemy aircraft. No structural damage was caused but one asdic set was put out of action and minor damage occurred to machinery and electrical equipment. Fighting Efficiency - Not impaired.
SOUTHAMPTON 16th Oct., 1939	One Direct hit delay action fuzed 1000 lbs. Bomb	3 days (temporary repairs)	SOUTHAMPTON while at anchor in the Firth of Forth was bombed by enemy aircraft. The bomb struck the corner of the pom-pom magazine, port side 87 station, perforated three decks, passed out through the ship's side, and exploded below the water surface. Structural damage was caused in the path of the bomb and electrical power failed temporarily. Fighting Efficiency - Temporarily impaired. REMARKS see EDINBURGH beneath.
EDINBURGH 16th Oct., 1939	Three Near Miss direct action fuzed 500 lbs. Bombs	Nil	EDINBURGH while at anchor in the Firth of Forth was bombed by enemy aircraft. Two near miss bombs "counter-mined" a third 20 ft. above the water and about 50 ft. from her starboard side (40-60 stations). Minor structural and electrical damage was caused mainly by splinters. Fighting Efficiency - Not impaired. REMARKS Damage to EDINBURGH and to SOUTHAMPTON (See above) emphasised the need for splinter protection to exposed personnel etc. and also the following electrical items:- 1. Breakers to be locked in the 'on' position. 2. Starter handles to L.P. generators to be locked in the 'on' position. 3. Important fuzes to be wired in.

CRUISERS - 1939

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ADVENTURE 13th Nov., 1939	One Magnetic Mine in 10 fathoms. Estimated charge 1500 lbs. T.N.T.	10 months	ADVENTURE was proceeding at 9 knots off Tongue Lightship when an explosion occurred under her bottom in wake of the forward 4.7 inch magazine port side. A hole was blown in the port side of the outer bottom about 20 ft. long and extending from the keel to the 14 ft. waterline, the outer bottom was also extensively buckled on the starboard side of the ship in the same vicinity. Extensive structural damage was confined to the forward magazines in the hold, refrigerating machinery compartment and ammunition lobby on the platform deck and also to the mess spaces on the lower and main decks over. Flooding extended over a length of 110 ft. but no serious damage was sustained by the main machinery and the main armament could have been fired in an emergency. Fighting Efficiency - Impaired. Ship was able to proceed to harbour at 8 knots but would have been unseaworthy in rough weather. W/T and the forward magazine group were out of action. REMARKS:- This incident revealed the need for the following items:- 1. Jumping ladders at all main access and communication hatches. 2. Increased issue of hand torches. 3. Provision to be made for shutting off steam to the siren. 4. Boat crutches to be capable of being withdrawn athwartships. 5. Distribution of the sleeping billets of key ratings. 6. Emergency medical stores to be distributed forward and aft on the upper deck.
BELFAST 21st Nov., 1939 D.N.C.4B/R1	One Magnetic Mine in 18 fathoms Charge 1500 lbs. T.N.T.	23 months Including refit	BELFAST was steaming at 17 knots in the Firth of Forth when an explosion occurred under her bottom below the forward engine room starboard side. Minor structural damage in the engine room but severe structural damage under the bridge to upper deck, upper deck girder etc., the flat keel was also fractured and outer bottom plating buckled, in short, ships back was broken. Only minor flooding occurred. Extensive damage to machinery and armament, all machinery feet were fractured. Fighting Efficiency - Ship was immobilised and all armament was out of action. REMARKS:- The incident revealed the need for the following items:- 1. Modification to the design and/or material of the main and auxiliary machinery to withstand shock. 2. Improved secondary oil lighting and candle lamps for W/T offices. 3. All non-watertight electrical apparatus to be raised 2 ft. above the deck. 4. Modifications to the head and heel fittings to sloping ladders. 5. To avoid sudden changes of inertia of ships cross section.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EXETER 13th Dec., 1939 D.N.C.4B/R3	Seven Direct Hits and several "Shorts" with 11" delay and direct action fuzed Shells	14 months including temporary repairs before proceeding to U.K.	EXETER during the "Battle of the River Plate", came under shell fire from the German Pocket Battleship, ADMIRAL GRAF SPEE. Hit No.1, struck the shelter deck just abaft 'B' Turret and passed out through the superstructure side without exploding. Hit No.2, struck the front plate of 'B' Turret between the two guns and detonated on impact. 'B' Turret was seriously damaged and put out of action. Splinters caused damage and casualties on the bridge. Hit No.3 struck on or very near, the fluke of the starboard sheet anchor and detonated on impact. The side plating was split and torn and much damage in the paint shop was caused by splinters. Hit No.4 struck the forecastle deck on the middle line just aft of the cable holders and exploded on impact. A hole 10 ft. by 10 ft. was blown in the forecastle deck and splinters penetrated the upper deck. Hit No.5 struck the jacket of the right gun of 'A' Turret, and exploded on impact. 'A' Turret was put out of action although it was found later that the turret could be trained and the left gun used. The forecastle deck was torn and the upper deck damaged by splinters. Hit No.6 passed through the wheelhouse, charthouse, out through the armament office and exploded just forward of the starboard 4 inch H.A. Gun. Damage from splinters was widespread, ammunition in R.U. lockers was ignited, the lower bridge and 25% of the 4 inch armament was put out of action. Hit No.7 passed through the ship's side just under the upper deck abreast 'B' turret, travelled aft through the mess spaces on the lower deck and exploded abreast the E.R.A's mess. Damage from splinters was widespread, the fire main was fractured, communications seriously damaged and the lower deck holed. The 4 inch H.A. magazine and handing room were flooded by water escaping from the fractured fire main. Fire broke out in the mess spaces just aft of 'B' turret support. Splinter Damage. EXETER suffered a great deal of superficial damage from splinters due to shells that burst short. Splinters on the ship's side near the waterline caused a good deal of flooding. Most aerials were carried away and searchlights, signal projectors, rigging etc. were badly damaged. One R.U. Ammunition locker was also ignited by splinters. Fighting Efficiency - Seriously impaired. 'A', 'B' and 'Y' Turrets and 25% of the 4 inch H.A. armament was out of action. Slight loss of speed due to flooding and consequent heel and trim of the ship. REMARKS See under Achilles Page 40.

CRUISERS - 1939

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AJAX 13th Dec., 1939 D.N.C.4B/R3	One Direct Hit and several Shorts with 11" A.P.C. delay action fuzed Shell	7 months including temporary repairs before proceeding to U.K.	AJAX during the "Battle of the River Plate" came under shell fire from the German pocket battleship ADMIRAL GRAF SPEE. The direct hit struck the after superstructure port side, passed thro' 'X' barbette and exploded in the Admiral's cabin, starboard side causing slight structural damage. The shell did not detonate but burst with a mild explosion. Splinter damage caused 'Y' turret to jam. Fighting Efficiency - Impaired. 'X' and 'Y' turret were out of action due to the shell hit. 'B' turret had one gun out of action due to failure of the hoist. REMARKS - see ACHILLES below.
ACHILLES 13th Dec., 1939 D.N.C.4B/R3	Several Shorts with 11 inch direct action fuzed Shell	Nil	ACHILLES during the "Battle of the River Plate" came under shell fire from the German pocket battleship ADMIRAL GRAF SPEE. Splinters from shells bursting short pierced the ship's side above the waterline, bridge screen etc. and also caused other slight damage. Minor damage was sustained in the director control tower but after casualties had been replaced it was able to continue in action. Fighting Efficiency - Not impaired. Gun fire was not efficient until casualties in the D.C.T. were replaced. W/T was out of action temporarily. REMARKS The "Battle of the River Plate" revealed the following items. 1. Increased protection to vital communications required. 2. Additional portable telephones required. 3. Improvement to look-out positions necessary. 4. Need for increased protection for exposed personnel. 5. Remote control of the smoke apparatus required. 6. Square ports to be abolished. 7. Automatic emergency secondary lighting to be introduced. 8. Modifications required to telephone hand sets to prevent "jumping off". 9. Additional portable pumps to be supplied. 10. Fire mains to be modified to provide for easier isolation and repair.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COVENTRY 1st Jan., 1940	Two Near Misses 250-500 lbs. delay action fuzed Bombs	3 months (including refit and fitting of R.D.F.)	COVENTRY whilst at anchor in Sutton Voe, was attacked by enemy aircraft. Slight structural damage was sustained but there was no splinter damage. The castings of main and auxiliary machinery were cracked and the W/T was damaged. Fighting Efficiency - Impaired. There was a loss of speed due to the machinery damage and the W/T was out of action.
NORFOLK 16th March, 1940 D.N.C.4B/R6	One Direct Hit piercing type 500 lbs. Bomb and two near misses delay action fuzed 500 lbs. Bombs	3 months	NORFOLK whilst at anchor in Scapa Flow was subjected to an air attack. The bomb struck the upper deck just aft of 'Y' turret and passed thro' the upper main lower and platform decks and burst in the inflammable store starboard side of the hold. Flooding extended from 'Y' handing room to fore end of the steering gear compartment. No damage was caused by the near misses. Fighting Efficiency - Impaired. 'X' and 'Y' turrets were out of action. The ship would probably have been unseaworthy in rough weather. REMARKS This incident emphasised the need for the following:- 1. New type of portable pump. 2. Trunking to be fitted to certain compartments. 3. Breaker rooms to be staggered. 4. Stiffening on W.T. doors and hatch coamings to be modified.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLASGOW 9th April, 1940	Two near misses one delay action and one direct action fuzed Bombs	2 days	GLASGOW was operating off the Norwegian coast at 17 knots when she was attacked by enemy dive bombers. Two bombs struck the water about 15 feet off the port side. One burst on contact abreast the bridge and the other exploded underwater further forward. The first bomb caused splinter damage, slight structural damage and minor flooding below the lower deck. The second bomb caused slight structural damage between the stem and the petrol compartment. Some minor flooding also occurred. Fighting Efficiency - Slightly impaired. 'A' turret was temporarily out of action and there was a loss of speed for 30 minutes due to the trim by the bow. REMARKS This incident emphasised the need for the following items 1. Lower deck side scuttles to be blanked. 2. Air test plugs to be fitted in the lower deck hatches. 3. Rapid hardening cement and tongued and grooved deals to be supplied for damage repairs. 4. W.T. sluice valves to be fitted on lower and platform decks where pierced by ventilation trunking. 5. Additional welding equipment to be supplied for damage repairs.
SOUTHAMPTON 9th April, 1940	One near miss size and type unknown Bomb	Nil	SOUTHAMPTON whilst operating off the Norwegian coast was attacked by dive bombers. Only minor damage was sustained. Fighting Efficiency - Slightly impaired. A director was temporarily out of action.
PENELOPE 10th April, 1940	Four near miss size unknown direct action fuzed Bombs	Ship was out of action before the bomb damage was received	PENELOPE struck a submerged rock and grounded near Bode (Norway) on the 9th April, 1940 and sustained extensive damage to the outer bottom. The ship was bombed whilst at anchor after temporary repairs had been carried out. All bombs dropped to port, 15 yards from the ship's side and abreast the 4 inch gun deck causing extensive splinter damage and minor flooding. Fighting Efficiency - Impaired. Ship was already immobilised due to grounding.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DEVONSHIRE 23rd April, 1940	Near misses, size and number not known direct action fuzed Bombs	Nil	DEVONSHIRE sustained slight structural damage due to shock and splinters, causing minor flooding. Fighting Efficiency - Not impaired.
BERWICK 16th April, 1940	Near misses size and number not known direct action and delay action fuzed Bombs	Nil	BERWICK sustained damage when bombs exploded under her forward engine room and under her after end. Slight structural damage was sustained and minor flooding occurred. Bombs exploding on impact with the water caused splinter damage to the aircraft and to the hangar. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SUFFOLK 17th April, 1940 D.N.C.4B/R13	One Direct hit 1,100 lbs. delay action fuzed. Two Near miss 500 lbs. direct action fuzed One Near miss 500 lbs. delay action fuzed Bombs	10 months	SUFFOLK whilst returning from the bombardment of Stavanger aerodrome, Norway, was attacked by enemy aircraft, 88 bombs being dropped in 33 high level and diving attacks. The direct hit struck the upper deck on the starboard side just forward of 'X' turret and penetrated the upper, main, lower and platform decks. It exploded between the after end of the engine room and the fore end of 'X' shell room. Severe structural and splinter damage was caused in the wake of the explosion and one small hole was blown in the ship's side. Flooding occurred below the lower deck between the forward bulkhead of the after engine room and the after end of 'Y' shell room. Two near misses exploded on impact with the water 15-20 feet from the ship's starboard side just aft of 'X' turret causing severe splinter damage. The ship was flooded aft of the forward engine room up to the main deck level. One near miss exploded underwater 15 feet from the ship's side port abreast the after boiler room, causing the after bulge compartment to become flooded. Fighting Efficiency - Seriously impaired. The immediate effect of the direct hit was to put the after engine room and 'X' and 'Y' turrets out of action. Effect of the near misses were 1. Steering gear put out of action. 2. After end of the ship abandoned and shut down. 3. Speed was reduced to 15 knots. After steaming at 15 knots for 22½ hours the ship was unseaworthy and was beached at Scapa Flow. REMARKS This incident emphasised the following points:- 1. Ship's side lining was found to hinder damage repairs. 2. Side scuttles below the weather deck to be blanked off.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CURACOA 24th April, 1940 D.N.C.4B/R16	One Direct hit 500 lb. delay action fuzed Bomb. Several Near miss 250-500 lbs. delay and direct action fuzed Bombs	4 months	CURACOA whilst acting as the A/A ship supporting operations at Andalsnes, was subjected to repeated bombing attacks. Near misses prior to the direct hit caused minor structural damage and slight leaks in the oil fuel tanks. The direct hit struck the port wing of the lower bridge, perforated the superstructure deck and exploded 2 feet above the forecastle deck. Severe structural damage above the upper deck in the vicinity of the bridge was sustained and all bridge controls and communications were put out of action. Fighting Efficiency - Greatly impaired. Casualties sustained were very heavy. REMARKS Ventilation to H.A.C.P. inadequate and the supply fan should be controlled from within.
AURORA 7th May, 1940	One Direct hit size and type unknown Bomb	4 weeks	AURORA was operating off Norway in company with EFFINGHAM when she was attacked by enemy aircraft and a bomb struck the left gun of 'B' turret. The roof and sides of the turret were displaced and the gun mechanism damaged. Fighting Efficiency - Impaired.
SOUTHAMPTON 25th May, 1940	Near Miss 100-200 lbs. direct action fuzed Bombs	Nil See ¤ Page 47	SOUTHAMPTON was operating off the Norwegian coast near Harstad when she was subjected to an attack by enemy aircraft during which some near misses caused splinter damage above the water line. Fighting Efficiency - Not impaired.
CAIRO 25th May, 1940	Near Miss 100-200 lbs. direct action fuzed Bomb	Nil	CAIRO was attacked by enemy aircraft whilst operating off the Norwegian coast. Near miss bombs caused superficial hull damage and Main W/T and D/F aerials were carried away by splinters. Fighting Efficiency - Slightly impaired.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SOUTHAMPTON 26th May, 1940	Near miss 100-200 lbs. direct action fuzed Bomb	Nil See * Page 47	SOUTHAMPTON whilst operating off the Norwegian coast near Harstad was subjected to attack by enemy aircraft. Splinters from near miss bombs caused superficial damage to the ship side and the superstructure port. Fighting Efficiency - Not impaired.
CURLEW 26th May, 1940 D.N.C.4B/R126	At least four Near Miss delay action fuzed Bombs	Sunk	CURLEW was providing A/A protection in Lavang Fiord, Norway when she was subjected to several attacks from enemy aircraft. At least four bombs exploded underwater, beneath the machinery spaces. The ship's side was split and opened up 2 ft. for a distance of 30 ft. abaft the engine room. The after engine room was flooded and engines out of action. The glands to the forward engine room were leaking. All electrical power failed, engine and boiler rooms were shut down, ship was anchored and abandoned with the quarter deck awash. CURLEW capsized and sank about two and a half hours after being attacked.
COVENTRY 28th May, 1940	Near miss Number and sizes unknown delay action fuzed Bombs	Nil	COVENTRY during operations off Narvik, was attacked by enemy aircraft. Near miss bombs caused oil fuel tanks to be strained and to leak slightly. Fighting Efficiency - Not impaired.
CAIRO 28th May, 1940	Two Direct hit direct action fuzed Bombs	5 weeks	CAIRO was attacked by enemy aircraft whilst operating off Narvik. Hit No.1 exploded on impact with the pom-pom deck just forward of the bridge structure. The 2 pounder pom-pom was put out of action, the bridge front and deck shattered and communications to the bridge damaged. The fire main, waterpipes and ventilation trunking were damaged by splinters which, also penetrated the forecastle deck. Hit No.2 exploded between the funnels. Splinters pierced the funnels, damaged both 0.5 inch mountings and severed electric cables and communications. Fighting Efficiency - Impaired. One pom-pom and two 0.5 inch mountings were put out of action. Defects to auxiliary machinery in boiler rooms and to steam joints.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SOUTHAMPTON 28th May, 1940	Near Miss 100-200 lbs. direct action fuzed Bomb	10 days *	SOUTHAMPTON was covering landing operations off Narvik when splinters from near miss bombs damaged her side plating and superstructure. One aircraft was put out of action by splinters which perforated the hangar door. Fighting Efficiency - Not impaired apart from the loss of one aircraft.
CALCUTTA 2nd June, 1940	Near Miss Size and type unknown Bomb	Nil	CALCUTTA whilst patrolling off Dunkirk was damaged by a near miss bomb. The gear case and oil cooler discharge pipe were fractured. Fighting Efficiency - Not impaired.
CALYPSO 12th June, 1940	Torpedo Type unknown fired from Submarine	Sunk	CALYPSO was steaming at 15½ knots in the Mediterranean near Crete when an explosion occurred beneath the ship to starboard. Severe structural damage was sustained in the vicinity of the explosion causing 'A' boiler room to flood immediately and 'B' boiler room to flood slowly. Immediate loss of steam prevented any damage control and the ship heeled to starboard. One hour and 33 minutes later the ship heeled further to starboard and sank by the bow in deep water. REMARKS Modifications are required to enable escape hatches to be kept open so that personnel below decks can be assisted to escape.
NEPTUNE 30th June, 1940	Several Near Miss size unknown direct action fuzed Bomb	Nil	NEPTUNE whilst operating off the south coast of Crete was attacked by enemy aircraft and near miss bombs caused widespread splinter damage to the aircraft crane, funnel, H.A. gunshield and boats. The aircraft on the catapult was damaged and jettisoned to prevent fire risk from leaking petrol. Fighting Efficiency - Not impaired apart from the loss of aircraft.
LIVERPOOL Date uncertain probably end of June, 1940	One Direct hit 4.7 inch direct action fuzed Shell	Nil	LIVERPOOL was damaged during an attack on Italian ships in the Mediterranean. The shell hit the armour belt at 180 station starboard, 3 ft. above the waterline, causing minor damage to the armour. Splinters cut the degaussing cable and penetrated two warheads. Fighting Efficiency - Not impaired.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLOUCESTER 8th July, 1940	One Direct hit size and type unknown Bomb	Nil	GLOUCESTER was damaged by a bomb during an attack on Italian Ships. Minor damage was sustained to the bridge structure, forward D.C.T., Evershed system and bridge D.C.T. instruments. Fighting Efficiency - Not seriously impaired.
NEPTUNE 9th July, 1940	Short Calibre unknown direct action fuzed Shell	Nil	NEPTUNE whilst in the Mediterranean off the Calabrian coast sustained splinter damage to the catapult and aircraft from a shell which fell short. The aircraft was jettisoned to prevent fire risk from leaking petrol. Fighting Efficiency - Not impaired apart from loss of aircraft.
SYDNEY (H.M.A.S.) 19th July, 1940	One Direct hit Calibre unknown direct action fuzed Shell	Nil	SYDNEY whilst in action against Italian cruisers in the Mediterranean, suffered a direct hit on the funnel. This made a hole, 3ft. in diameter in the outer and inner casings, and caused minor splinter damage. Heavy fumes were drawn down into the engine room, but were quickly dispersed. Fighting Efficiency - Not impaired.
LIVERPOOL 29th July, 1940	One Direct hit 250 lbs. delay action fuzed Bomb	Nil	LIVERPOOL was operating in the Mediterranean, when she was attacked by enemy aircraft. A bomb struck the bridge front a glancing blow, perforated 'B' Gun deck, and the forecastle deck, and finally came to rest on the upper deck without detonating. Minor damage was sustained to bridge instruments. Fighting Efficiency - Not impaired.
GALATEA 1st Sept., 1940	Mine Probably Magnetic Possibly Acoustic 13 fathoms	1 Week	GALATEA was steaming at 20 knots off Chequer Shoal Buoy, when an explosion occurred 50 yards to port. Minor structural damage and strained rivets were sustained. 'A' Boiler was shut down while a new water gauge was fitted. 6" F.C. Table and U.D. 4" height finder was out of action and the 36" searchlight glasses were broken. Fighting Efficiency - Temporarily impaired. REMARKS. This incident emphasised the following points:- 1. Glass covers to F.C. tables to be made of unsplinterable glass. 2. The system of lagging in the T.S. is unsuitable. Instruments secured to it are unable to withstand shock.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FIJI 1st Sept., 1940 D.N.C.4B/R46	Torpedo 21" Contact (Probably electrically driven with reduced charge in warhead) 800 - 900 fathoms. Fired from submarine	6 months	FIJI, whilst steaming at 13 knots in the North Sea with a convoy, was struck by a torpedo just abaft the forward bulkhead to the boiler room, port side. The explosion blew a hole in the ship's side, extending 20 ft. below the armour belt, and caused severe structural damage inboard from the lower deck to the keel. The forward boiler room, port wing compartments abreast the forward engine room, small arms magazine; No.1 Transmitter room; Marine and gunner store on the platform deck; and oil fuel tanks A2, B2, A4, B4, X2 and X4 were immediately flooded. Main armament was undamaged, and the ship steamed 500 miles to port at 10 knots. Fighting Efficiency - Severely impaired. Ship could not be steamed at full speed, due to the possible failure of the forward engine room bulkhead, and she was unable to remain in action. REMARKS This incident revealed the need that all W.T. doors to store rooms should open outwards, and all loose floor plates in engine rooms, etc., be clipped down.
GALATEA 9th Sept., 1940	One Mine non-contact, type uncertain, possibly Acoustic $7\frac{1}{2}$ fathoms	4 months including refit	GALATEA was proceeding at 20 knots, when an explosion occurred about 40 yards to starboard, and just forward of 'A' Turret. Slight damage was caused to the hull plating and the internal structure. Minor flooding at the far end was controlled. There was a temporary breakdown of the ring main breakers. The sliding feet of the port and starboard L.P. turbines (forward engine room) were fractured, but these defects were not noticed at the time of the explosion, and the main engines were able to run normally. Fighting Efficiency - Temporarily impaired. The efficiency of the 6" T.S. was reduced, and the 4" H.A.C.S. was temporarily out of action. REMARKS This incident revealed the unsuitable lagging in the T.S., and the fact that instruments secured to this lagging are unable to withstand shock.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KENT 17th Sept., 1940 D.N.C.4B/R61	One Torpedo Contact dropped by aircraft 300 fathoms	12 months	KENT was attacked by enemy aircraft whilst in action off Bardia. The torpedo struck the ship on the starboard side just abaft 'Y' turret and 10 ft. below the water line. An irregular hole 35 ft. by 30 ft. was blown in the side plating and severe structural damage was sustained inboard from the keel to the upper deck. The 8" magazine group and other compartments aft below the lower deck were immediately flooded. A small fire broke out in the warrant officer's flat and two cabins were burnt out, casualties being caused by Carbon Monoxide poisoning. Although the main engines and armament were undamaged, the starboard inner shaft and "A" bracket were missing. All lighting was lost at the after end. Fighting Efficiency - Vessel immobilised. 'X' and 'Y' turrets were put out of action, due to flooding. Both steering motors were out of action and the rudder was jammed. The vessel was towed to Alexandria. REMARKS This incident emphasised the following points:- 1. Necessity for a pom-pom director at night. 2. Portable pumps should have terminal connections for ready fitting of cables with loose ends, etc. 3. Steering motors should be watertight. 4. Every bulkhead on every deck should have emergency through terminals. 5. The valve spindle on the cross connection valves between the steering motor sumps should be extended so as to provide a secondary working position on the lower deck.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SUSSEX 18th Sept., 1940 D.N.C.4B/R53	One Direct hit approx. 250 kgm piercing type delay action fuzed Bomb	21 months	SUSSEX whilst lying in York Hill Basin, Clydeside, after refitting, was hit by a bomb dropped by enemy aircraft, during an air raid on the Glasgow area. The bomb struck the upper deck, starboard, abreast the mainmast, it penetrated the main, lower and platform decks and exploded in the starboard thrust block compartment. Severe structural and splinter damage was sustained in wake of the explosion. A serious fire broke out in the after engine room and this spread to the forward engine room and eventually to all compartments between stations 162 and 264. Main engines and all electrical and armament material abaft 162 bulkhead was seriously damaged by fire and flooding. The after end of the ship was flooded by fire fighting appliance, and the ship heeled 23° to starboard and grounded aft. Fighting Efficiency - Severely impaired. If SUSSEX had been at sea and the fire allowed to reach the serious state that it did she would have been lost. If the vessel had been "with the fleet" the fire could most probably have been confined to the after engine room and a few compartments abaft it below the lower deck. Thus the effect would have been:- 1. A reduction of speed due to the after engine room being out of action. 2. 'X' and 'Y' guns out of action due to the compulsory flooding of the magazine groups.
DRAGON 23rd Sept., 1940 D.N.C.4B/215	'Shorts' calibre and type unknown Shell	Nil	DRAGON while in action off Dakar was showered with splinters by a "shot" from a large calibre gun. No major damage was sustained but splinters from shorts from small calibre guns perforated the shell plating forward and caused minor flooding. A minor cordite fire was started at No.1 Gun and fires were also started in the paint store and the boy's mess deck. Fighting Efficiency - Not seriously impaired. Speed temporarily reduced to 10 knots to effect repairs and reduce flooding through splinter holes.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CUMBERLAND 23rd Sept., 1940 D.N.C.4B/215	One Direct hit 11 inch delay action fuzed. (Very short delay) Shell	13 days	CUMBERLAND during the operations off Dakar, was struck by a shell at 159 station, port, 6 inches above the armour belt. The shell was deflected upwards by the protective deck and burst 11 ft. 6 ins. inboard. Minor structural damage was caused in the vicinity of the explosion, and a hole (3 ft. in diameter) was blown in the protective deck. Extensive damage to pipe lines, gunnery and electrical equipment by splinters. Fighting Efficiency - Seriously impaired. Vessel was momentarily immobilised, due to main breaker coming off the board. Subsequent effect (Main damage located after about 6 hrs. and temporary repairs effected):- 1. Continued loss of feed water caused eventual stoppage of main engines, and after dynamos. 2. Lack of ventilation caused abandonment of forward engine room and temporary abandonment of after engine room. 3. 4 inch magazine was flooded as a precautionary measure.
AUSTRALIA (H.M.A.S.) 25th Sept.,1940 D.N.C.4B/215	Two Direct hits delay action fuzed Shell	Nil	AUSTRALIA whilst in action with two French cruisers of the GLOIRE class, was hit by two shells. Hit No.1 perforated the ship's side at 194 station, port, about 4 ft. above the lower deck, and burst on the protective deck. Minor structural damage was sustained in the vicinity of the burst. Hit No.2 perforated the weather deck at 214 station, and burst 12 ft. inboard. Minor structural damage was sustained in the vicinity of the burst. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION.	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AJAX 12th Oct., 1940 D.N.C.4B/124	Seven Direct hits Medium calibre. Direct action fuzed Shells	Nil	AJAX while in action in the Mediterranean with Italian destroyers, was damaged by shell-fire. Hit No.1 struck the lower bridge port, and caused minor damage in the plotting office and R.C.O. Electrical circuits were cut by splinters. Hit No.2 struck just beneath the lower bridge port, the S.D.O. was wrecked and the W/T type 279 put out of action, due to cut electric leads. Hit No.3 struck the ship's side, abreast the main central store, port, lower deck. A hole, 2 ft. in diameter was blown in the ship's side, and fittings in the store damaged by blast. The explosion started a fire which damaged electric leads, etc. Hit No.4 struck the armour belt abreast "C" boiler room, 2 ft. below the upper deck, port, only splinter damage to the torpedo tubes was sustained. Hit No.5 struck the after davit of the port whaler, the whaler was destroyed, P.1 4 inch gun, funnel, vent trunks, and adjacent fittings pierced by splinters. Hit No.6 struck the ship's side abreast the gunners armament store, port. A hole, 2 ft. in diameter, was blown in the ship's side and the stores damaged by the subsequent flooding. Hit No.7 struck the ship's side, port, abreast the F.W. tank, aft, just below the lower deck. A hole, 2 ft. 6 ins. in diameter was blown in the side plating, but only minor splinter damage was sustained. Fighting Efficiency - Impaired. One 4 inch gun damaged, Radar, plotting office, and R.C.O. were put out of action. REMARKS The incident emphasised the following requirements:- 1. Ample supply of cement should be carried to effect temporary repairs. 2. Need for an increased supply of suction hoses. 3. Miners headlamps are more serviceable than hand torches. 4. A number of steel plates cut to size to be carried, for rapid patching of shell holes, etc.

CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIVERPOOL 14th Oct., 1940 D.N.C.4B/R82	One Torpedo Contact dropped by aircraft	12 months, including 4 months permanent repairs in U.S.A.	LIVERPOOL was attacked by enemy aircraft whilst proceeding with the fleet to Alexandria. The torpedo struck the fore end, and severe structural damage was caused in the vicinity of the explosion. The petrol tank was damaged and petrol vapour pervaded the fore end. The petrol vapour was ignited by a spark from a short circuit, and the resultant explosion severely damaged the fore end, and blew off the roof of 'A' turret. Severe structural damage was sustained as far aft as 'B' turret. The damaged bow caused the ship to steer badly when towed stern first, but it eventually broke off just forward of 'A' turret, whilst the ship was being towed to Alexandria. Fighting Efficiency - Seriously impaired. 'A' and 'B' turrets were out of action. The ship was unable to proceed under power, except astern. REMARKS As a result of this incident an amendment of Damage Control Handbook (O.V.6331/39) Page 5 Para. 36, was issued. When petrol fumes are present, consideration should be given to the need for switching off fans and damaged electric circuits in the vicinity, to guard against further explosion. A.F.O.P402/41.
BERWICK 27th Nov., 1940 D.N.C.4B/R59	Two Direct hits 8" delay action fuzed Shells	20 days temporary repairs See Page 56	BERWICK was damaged by shell fire whilst in action with two battleships (LITTORIO Class) Cruisers, and Destroyers in the Mediterranean. 1st Shell struck and perforated 'Y' turret support, and exploded 4' away. Minor structural damage was sustained in the vicinity of the burst. A small fire was started in 'Y' turret support. 2nd Shell struck the upper deck at 237 station port, perforated the main and lower decks and burst between the gun room and 'Y' shell handing room. Minor structural damage was caused in way of the burst. A small fire started in the oilskin store. Fighting Efficiency - Not seriously impaired. 'Y' turret was out of action. (BERWICK steamed at full speed throughout the engagement)

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLASGOW 3rd Dec., 1940 D.N.C.4B/R65	Two Contact Torpedoes dropped by aircraft	9 months	GLASGOW was attacked whilst lying at anchor in Suda Bay. At 1540 a torpedo struck the starboard side at about 9 station. A hole was blown in the side plating port and starboard 22 ft. x 22 ft. and severe structural damage was sustained inboard. Minor damage was caused aft to 16 bulkhead. A minor fire occurred in the battery room forward. Immediate flooding took place forward of 14 bulkhead. At 1541 a torpedo struck the starboard side about 238 station, just above the keel. A hole, about 22 ft. x 22 ft. was blown in the outer bottom on the port and starboard sides. Extensive internal damage extended from 227 to 245 stations, minor damage to 227 station. Immediate flooding occurred from 227 to 245 stations. The main machinery was undamaged. Minor damage occurred to electrical equipment. Fighting Efficiency - Seriously impaired. 'Y' turret was not safe to fire. The steering gear was put temporarily out of action and the two inner shafts were seriously damaged and jammed. Eventually the ship steamed to Alexandria at 16 knots. The ship's back was broken. REMARKS The ship's report contained the following proposals:- Necessity for longer electric leads on portable pumps. Need for increased supply of suction hoses. Need for larger strum boxes with coarser mesh on fixed suctions, and all pumps that can be used on the main suction line should have large and readily accessible fine mesh suction strainers.
COVENTRY 13th Dec., 1940	One Contact Torpedo fired from Submarine	See later action Page 62	COVENTRY was proceeding in the Mediterranean when she was struck by a torpedo at the fore end. The fore end of the ship was missing below the platform deck from the stern to 10 bulkhead. Serious damage was sustained to structure between the platform and upper decks back to 17 bulkhead. The fore end was flooded. The main engines and armament were undamaged. Fighting Efficiency - Impaired. The ship steamed to Alexandria at 10 knots.

CRUISERS - 1940/41

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BERWICK 25th Dec., 1940 D.N.C.4B/R59	Four Direct hits delay action fuzed Shells	6 months including damage received 27th Nov., 1940. See Page 54	BERWICK was damaged by shell fire during an action with a German cruiser of the HIPPER class in the Atlantic N.W. of the Azores. 1st Shell struck the starboard side of 'X' turret, perforated the gunhouse deck and revolving structure and emerged through the gun support, port side, and passed overboard without detonating. 2nd Shell struck the side plating starboard at 71 station, it pierced the platform deck, struck 4 inch N.C. longitudinal bulkhead, was deflected through 100°, perforated No.7 oil fuel tank and penetrated 81 bulkhead, but did not explode. Immediate flooding of spaces 69-81 lower deck and 7 and 10 oil fuel tanks occurred. 3rd Shell struck the starboard side of S.1 4 inch twin mounting perforated the superstructure and upper decks and exploded in the central funnel uptake. Minor damage was sustained in the vicinity of the burst. 4th Shell perforated the upper bulge, struck the $4\frac{1}{2}$ inch C side armour, was deflected downwards and exploded in the bulge. Minor structural damage was sustained. Immediate flooding 183 to 201 stations in double bottoms and 195 to 219 stations upper and lower bulge compartments. Fighting Efficiency - Not seriously impaired. 'X' Turret was jammed and out of action. The main telephone exchange was put out of action. A.4 boiler was closed down due to loss of feed water. REMARKS Ship's report contained the following proposal:- It is considered necessary that valves with hose connections should be fitted on the ship's side, port and starboard, in all main compartments on the lower deck, to provide a ready discharge for all portable pumps.
SOUTHAMPTON 10th Jan., 1941	Near Miss Size and type unknown Bomb	Nil	SOUTHAMPTON was escorting GALLANT to Malta when they were attacked by enemy aircraft. Near Miss bomb caused minor damage to the A/S dome. Fighting Efficiency - Not impaired.
BONAVENTURE 10th Jan., 1941	'Shorts' calibre and type unknown Shell	Nil	BONAVENTURE was involved in an action with two Italian warships in the Mediterranean. Superficial damage was caused by splinters. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SOUTHAMPTON 11th Jan., 1941 D.N.C.4B/R166	Two possibly Three, Direct Hits 250 kgm delay action fuzed Bombs Torpedoed by H.M.S. GLOUCESTER (One torpedo) H.M.S. ORION (four torpedoes)	Sunk	SOUTHAMPTON was attacked while escorting a convoy off Malta. Dive bombers scored hits with bombs to which incendiaries were attached. A bomb or bombs perforated 'X' gun deck, ward and gun room flat and probably burst in the main W/T office, extensive internal damage was sustained and all W.T. doors in the vicinity were shattered. Intensive fire broke out, involving the whole of the after-superstructure and the ward room flat. Many key personnel were killed. 'Y' magazine was flooded but as the flooding arrangments to the 4 inch and 'X' magazine were wrecked these spaces could not be flooded. The bomb hit forward, entered the port hangar, perforated E.R.A's pantry and exploded on the protective deck above 'A' boiler room. Extensive internal damage was sustained and the protective deck split, the superheater pipe was blown off the boiler and the compartment abandoned. Important engine room personnel were killed. Damage and casualties to important personnel prevented effective damage control measures being taken. The fire aft was being successfully fought until 'A' Boiler room was abandoned and caught fire. All water supply and power was lost and both fires got out of hand. SOUTHAMPTON was abandoned and sunk by own forces.
GLOUCESTER 11th Jan., 1941	One Direct hit (did not explode) One Near Miss 250 kgm delay action fuzed Bombs	1 month	GLOUCESTER whilst with a convoy in the Mediterranean, was attacked by enemy aircraft. The direct hit bomb passed through the forward 6 inch D.C.T. into the meteorological office without exploding. Minor structural damage was sustained in the path of the bomb. The D.C.T. was distorted and rangefinder badly damaged, important cables in the D.C.T. were damaged. Minor damage (53-87 stations) was caused by splinters from a near miss bomb. Fighting Efficiency - Slightly impaired. Forward 6 inch D.C.T. out of action.
ADVENTURE 15th Jan., 1941 D.N.C.4B/R50	One Non contact Acoustic Mine (1500 lbs. approx.) 24 fathoms	5½ months	ADVENTURE was returning to Liverpool from Milford Haven when a violent explosion occurred beneath the ship at about mid length. The outer bottom sustained minor damage (140 to 177 stations) and internal structure (104 to 190 stations) received slight damage. The vertical arm of the port 'A' bracket was fractured just above the barrel. The auxiliary machinery castings sustained damage. Minor flooding occurred in the engine room and after trimming tank. Fighting Efficiency - Impaired. Speed was reduced and the ship returned to port in 6 hours at 9 knots. HA/LA director, rangefinders and heightfinders and both main and 2nd W/T sets out of action due to shock.

CRUISERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PERTH (H.M.A.S.) 15th Jan., 1941	One Near Miss size and type unknown Bomb	Nil	PERTH was bombed whilst at Malta. A near miss aft caused minor structural damage in way of oil tanks and surrounding spaces, and minor flooding of 'X' shell room, oil fuel tanks and adjacent compartments. Fighting Efficiency - Impaired. 'Y' turret was out of action due to shock. The ship was able to steam at 25 knots.
AJAX 24th Jan., 1941	Near Miss size and type unknown Bomb	Nil	AJAX sustained minor damage when attacked by enemy aircraft. Three low power generators stripped. Fighting Efficiency - Not impaired.
NEPTUNE 9th Feb., 1941	One Near Miss 250 kgm delay action fuzed Bomb M/Gun attack	2½ months	NEPTUNE was damaged when a near miss bomb burst about 20 ft. to 30 ft. from her port side abreast the mainmast. The ship sustained a severe shaking, and minor damage to oil fuel and after W/T compartments. Superficial damage was caused by M/Gun bullets. Fighting Efficiency - Not impaired.
NEPTUNE 16th Feb., 1941	Near Miss size and type unknown Bomb	Nil (Damaged whilst undergoing repairs)	NEPTUNE was in dry dock at Chatham Dockyard when a bomb exploded on a Compressor House about 150 yards away on the dock side to port of the ship. Superficial damage was caused by splinters to the superstructure and side plating, port. Fighting Efficiency - Not impaired.
BONAVENTURE 23rd March, 1941	One Near Miss size unknown direct action fuzed Bomb	Nil	BONAVENTURE was damaged during an air attack on Grand Harbour, Malta. Superficial damage was caused by splinters from a near miss. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
YORK 26th March, 1941	One Explosive Motor-Boat Contact	Beached See later action on Pages 61, 62 and 63.	YORK was at anchor in Suda Bay (Crete) when she was attacked by enemy 'E' boats. A violent explosion occurred amidships on the starboard side and the ship listed to starboard and settled by the stern. A hole was blown in the side plating 25 ft. long by 11 ft. wide extending upwards from the bilge keel. Severe damage to side plating 133 to 155 stations extended upwards for 25 ft. from 8 ft. below the bilge keel. Internal damage was extensive. 'A' and 'B' boiler rooms and forward engine rooms were immediately flooded, slow flooding occurred in the after engine room and compartments in the vicinity. All steam, lighting and power was lost. Vessel was immobilised, unseaworthy and beached. REMARKS The ship's report contained the following remarks:- The plentiful supply of hand torches proved invaluable. The provision of fixed torches for emergency lighting in machinery spaces proved of great value.
SHEFFIELD 30th March, 1941 D.N.C.4B/R70	One Near Miss 250 kgm delay action fuzed Bomb	5 days temporary repairs. Including refit and damage received 17.3.41 (See Appendix 1 Page 465)	SHEFFIELD, whilst operating in the Western Mediterranean, was dive bombed by a French aircraft. The bomb struck the water 10 to 15 yards abreast of 30 station, port. Minor damage was caused to the hull plating and framing 22 to 25 stations below the waterline. Fighting Efficiency - Not impaired.
BONAVENTURE 31st March, 1941	Two Contact Torpedoes fired from Submarine	Sunk	BONAVENTURE, whilst operating in the Western Mediterranean, was hit by two torpedoes, which both struck on the starboard side, one at the after end of the forward engine room and the other abreast the after engine room. Shock caused failure of all telephone communications. It is possible that an oil fuel fire broke out at the after end of the foremost engine room. Ship rapidly flooded, heeled heavily to starboard and sank by the stern in 5 to 6 minutes.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CAPETOWN 8th April, 1941 D.N.C.4B/R176	One Contact Torpedo fired from 'E' Boat	13 months	CAPETOWN was torpedoed by an 'E'-Boat whilst protecting a convoy off Kuba, Eritrea. The torpedo struck the starboard side at the centre of 'B' boiler room which was flooded immediately. The fore and aft bulkheads of the boiler room suffered minor damage only. All lighting failed immediately and the main and auxiliary machinery stopped. The starboard ring main was fractured. Lighting and power was restored whilst in tow. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised. Seagoing efficiency was greatly reduced by flooding of 'B' Boiler room. Note:- Vessel taken in tow to Port Sudan (294 miles) REMARKS The ship's report contained the following remarks and proposals:- The value of damage control arrangements was proved. Value of N.C. 5" outfit headlamps was illustrated. Necessity for davits to be fitted with the spars and griping bars necessary to keep all boats stowed in the outboard position during an emergency.
NAIAD 10th April, 1941	No unknown Near Miss 500 kgm, and 250 kgm direct action fuzed Bombs	Nil	NAIAD was damaged by near miss bombs during an air raid on the Tyne Area. Superficial damage to hull and superstructure was caused by splinters. Keeps to sliding feet of turbines and gyro compass were damaged by shock. Glasses to H.A. and L.A. control instruments in T.S. were broken. Fighting Efficiency - Not seriously impaired. REMARKS The modified keeps to sliding feet of turbines were an advantage. Modified shell and cordite stowage in magazines stood up well to shock.
KENT 21st April, 1941	One Direct Hit 50 kgm direct action fuzed Bomb. One Near Miss 50 kgm direct action fuzed Bomb	Nil (Damaged whilst undergoing repairs)	KENT was damaged during an air-raid on Plymouth where vessel was in dry dock undergoing torpedo damage repairs. The direct hit bomb struck the upper deck just abaft 'Y' turret a hole 5 ft. by 5 ft. was blown in the deck and minor structural damage sustained from blast. Extensive but unimportant damage caused by splinters. Near miss bomb burst near the starboard side forward and caused minor splinter damage. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
YORK 22nd April, 1941	Two Near Miss Size and type unknown Bombs	See pages 59, 62 and 63	YORK was further damaged during a dive bombing attack on Suda Bay, Crete. One bomb fell about 75 yards away, and another close to the starboard side. The ship was severely shaken, and the after engine room was flooded in 20 minutes. Note:- The after engine room was cleared of water as a result of salvage operations.
YORK 24th April, 1941	One Near Miss size and type unknown Bomb	See page 59, 62 and 63	YORK was again damaged when a heavy bomb fell close alongside, on the port side, during a further air attack on Suda Bay, Crete. This caused underwater damage which subsequently led to the flooding of 'B' magazine, transmitting station, and No.1 naval store through A4 and A6 oil fuel tanks. On 28th April salvage operations were temporarily abandoned, and orders were given to land certain items of equipment. Preparations were made for destroying the ship with depth charges, if the occasion arose.
GLOUCESTER 30th April, 1941	One Direct Hit size and type unknown Bomb, and probably One Near Miss, size and type unknown Bomb	1 day temporary repairs	GLOUCESTER was damaged by a bomb which struck the upper deck, and penetrated the upper, lower, and platform decks. It then passed out through the port side plating, below the water line, without exploding. Minor structural damage was sustained in the path of the bomb. The watertight compartment 218 to 227 below the platform deck, and No.5 central store were flooded. Possible damage from the near miss included minor damage to the starboard side plating 43 to 63 stations for 12 ft. below the water line. Fighting Efficiency - Not impaired, except for slight reduction in speed, due to flooding.
ADVENTURE 4th May, 1941	No. unknown Near Miss size and type unknown Bombs	Nil (Damaged whilst undergoing repair)	ADVENTURE was damaged during an air raid on Liverpool, where she was undergoing mine damage repairs. Superficial damage was caused by bomb splinters from near misses. Fighting Efficiency - Not impaired.
CORNWALL 8th May, 1941	Two Direct Hits direct action fuzed Shells	1 month	CORNWALL sustained damage from two direct hits above the waterline, whilst in action with an enemy raider. A hole was blown in the side plating 75 to 77 stations starboard, between lower and platform decks. The side plating was also damaged over the area 77 - 79 stations and minor damage was caused to the internal structure. A hole was blown in the side plating 130 to 131 stations starboard from upper deck to 3 ft. below it. Minor damage was sustained to internal structure above the waterline and superficial damage was caused by splinters. One ring main section and some fire control and communication cables were damaged. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
YORK 16th May, 1941	Ten Near Miss size and type unknown Bombs	See pages 59, 61 and 63	YORK was severely shaken, when ten bombs fell nearby during an attack on the harbour by enemy bombers.
COVENTRY 17th May, 1941	One Near Miss size and type unknown Bomb	10½ months (including repairs to damage received 13th Dec.1940 (See Page 55)	COVENTRY received minor damage from a near miss. Fighting Efficiency - Not impaired.
YORK 18th May, 1941	One Direct Hit 250 kgm or probably 500 kgm. Bomb three Near Miss size and type unknown Bombs	See pages 59, 61 and 63	YORK was further damaged during an enemy air attack on the harbour. A direct hit on the roof of 'B' turret completely wrecked the gun house, the back of the turret being blown into, and severely damaging, the bridge structure. A near miss forward lifted 'A' turret off its roller path and split the turret sides. Combined with two other near misses the fore end was severely shaken and damaged. Due to previous bombing, YORK was flooded to the water line between 111 and 203 stations. This was now extended to 14 stations.
YORK 19th May, 1941	No. unknown Near Miss 250 kgm or probably 500 kgm Type unknown Bombs	See pages 59, 61 and 63	YORK was extensively damaged by near miss bombs, when the harbour was attacked by enemy aircraft. The starboard side plating was buckled and damage to the upper deck was increased. Further damage was also caused to internal bulkheads. The vessel was completely flooded between stations 10 and 203.
YORK 20th May, 1941	One Direct Hit 250 kgm or probably 500 kgm. Type unknown Bomb	See pages 59, 61 and 63	YORK received a direct hit on 'Y' turret, when the harbour was again bombed by enemy aircraft, which completely wrecked the gunhouse and the quarter deck abaft the turret was holed and buckled. New flooding to the water level occurred between 203 and 256 stations. YORK was then flooded from 10 to 256 stations, (the aftermast station in the vessel being 262).

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AJAX 21st May, 1941	Near Miss Size and type unknown Bombs	Indeterminate (See later action page 65)	AJAX had her stem fractured and bent over below the waterline. The fore peak was flooded and the port side plating just abaft the collision bulkhead was leaking slightly. Both port shafts were distorted. Fighting Efficiency - Slightly impaired. Speed reduced to 25 knots.
YORK 22nd May, 1941	One Direct Hit size and type unknown Bomb	Ship abandoned. See pages 59, 61 and 62	YORK was further damaged when the harbour was again bombed by enemy aircraft. A direct hit amidships caused superficial damage, no further flooding was possible. The diesels and generators were wrecked, the after funnel set aft 10° and the deck around the torpedo tubes, severely distorted. Note:- On 20th May, the invasion of Crete had commenced. It was decided to abandon YORK as she was beyond all hope of salvage and there was nothing on board of value to the enemy.
FIJI 22nd May, 1941 D.N.C.4B/87	One Direct Hit three Near Miss size and type unknown Bombs	Sunk	FIJI was dive bombed, whilst operating off Crete. First near miss exploded off the port side and damaged the side plating and side scuttles above the waterline. Second near miss exploded abreast the forward engine room, port side. The side plating was blown in, the port crane damaged, and the torpedo tubes were thrown 15 ft. aft. Minor flooding of oil into the forward engine room occurred. All lighting failed, except the emergency lighting in the forward machinery spaces. Third near miss exploded abreast the forward boiler room, port side. The ship heeled 19° to port, and this slowly increased to 25°. The forward engine room and boiler room flooded rapidly, and the speed was greatly reduced. The direct hit passed through the hangar and exploded, probably above the forward boiler room. The heel increased to 30°. The ship was abandoned, and finally capsized about 5 hours after the second near miss.
ORION 22nd May, 1941	Near Miss size and type unknown Bomb	Nil	ORION was damaged by a near miss bomb in a night action off Crete. Superficial damage was caused by splinters. The foremast was weakened due to shock, and some damage was caused to aerials and rigging. Fighting Efficiency - Slightly impaired. The speed was reduced to 25 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NAIAD 22nd May, 1941	No. unknown Near Miss size and type unknown (probably mixed delay and direct action fuzed) Bombs	21 days temporary repairs	NAIAD was damaged whilst operating off Crete. The fore end, below and above the waterline, was extensively damaged by splinters from near misses, and minor internal damage was sustained. The ship was partially flooded forward of 34 bulkhead. Auxiliary machinery castings were fractured. Fighting Efficiency - Slightly impaired. A reduction of speed occurred due to flooding and damage to auxiliary machinery. REMARKS The ship's report contained the following remark:- Damage was confined to the wholly welded portion of the vessel which stood up well under shock.
CARLISLE 22nd May, 1941	One Direct Hit 250 kgm direct action fuzed Bomb One direct hit 50 kgm direct action fuzed Bomb Two Near Miss 250 kgm. Type unknown Bombs	1 month	CARLISLE sustained damage whilst operating off Crete. Direct hit No.1 on left gun of No.2 - 4 inch mounting. Direct hit No.2 struck the after funnel, causing serious damage within 25 ft. radius of the burst. The after funnel was destroyed and extensive splinter damage occurred within 150 ft., including damage to R.D.F. transmitter and power cables. A minor petrol fire started in the starboard waist and R.U. ammunition was ignited. Temporary D/G cables on deck were burnt. Fighting Efficiency - Impaired. No.2 gun was destroyed and the R.D.F. was out of action. The efficiency of .5 inch M/Guns was reduced by 50%.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLOUCESTER 22nd May, 1941	At least Four Direct Hits and three Near Miss size and type unknown Bombs	Sunk	GLOUCESTER was dive bombed whilst operating off Crete. The ship sustained at least two hits in the after part of the ship. One passed through 'X' turret barbette and exploded in the gun room flat, and the other blew the D.C.T., after H.A. director and the main topmast overboard. "B" boiler room, compressor room, and the main W/T office were damaged. One direct hit occurred on deck between P.1 and P.2 4 inch guns. Another direct hit penetrated the port pom-pom platform, passed through the hangar, and exploded in the canteen flat. The ship was immobilised and almost stationary. Three near misses burst along the port side. The ship heeled to port with main T.S. and 2nd W/T flooded. Fires were burning in the vicinity of the port pom-pom, the R.U. magazine, and the wardroom flat. The ship was abandoned when the port gunwale was awash and shortly afterwards she capsized to port and sank by the stern.
AJAX 28th May, 1941	Near Miss size and type unknown Bomb	3 months approx. including repairs to damage received on 20th May 1941 (See page 63)	AJAX, during an action at the evacuation of Crete sustained minor damage and an internal fire as a result of a near miss bomb. Details of the damage are not available. Fighting Efficiency - Not seriously impaired.
NORFOLK 28th May, 1941	Four Near Miss 100 kgm delay action fuzed Bombs	Nil	NORFOLK was attacked by an enemy aircraft off the West Coast of Ireland, and a stick of four bombs was dropped off the starboard bow. The starboard side framing was slightly distorted and A.1 oil fuel tank leaking. Fighting Efficiency - Not impaired, except for slight contamination of oil fuel.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ORION 29th May, 1941 D.N.C.4B/R78	Two Direct Hits 500 kgm delay action fuzed. Several Near Miss size and type unknown Bombs	8½ months	ORION was attacked by enemy aircraft during the evacuation of Crete. Near misses off the starboard quarter caused Y1, 2, 3 and 4 and B7 and 9 O.F. tanks to leak while the after 6" magazine was flooded. Leaks caused contamination in A3 and 4 O.F. tanks. A direct hit occurred on the roof of "A" turret, the bomb finally exploding on the after side of roller path. Serious structural damage took place within a radius of 30 ft. from burst, and "A" gunhouse was wrecked. The roof of "A" turret hit "B" guns. A cordite fire occurred in "A" turret and lobby and fires started on lower and upper decks in this vicinity. The forward magazines were flooded as a precautionary measure. Serious damage took place to important electric cables. Another direct hit bomb struck the bridge, perforated the bridge structure, and burst in the lower steering position. Serious structural damage occurred between 53 to 80 stations over full width of the ship between hold and forecastle decks. The crown of 4" H.A. magazine (80 lb. N.C.) was blown down a maximum of 6'. Minor splinter damage was sustained. The failure of all L.P., except local batteries to 'X' and 'Y' turrets occurred. Fires started in the vicinity of the burst, and the switchboard was abandoned, due to intense heat, while 'A' boiler room was temporarily evacuated. Fighting Efficiency - Seriously impaired. 'A' and 'B' turrets were put out of action 'X' and 'Y' turrets could be fired in local control only. The damage control position, all low power, lower control tower, and telemotor leads were destroyed. The 6" transmitting station, 4" H.A.C.P. 4" and after magazine and numerous oil fuel tanks were flooded. REMARKS The ship's report contained the following proposals:- Unit suctions to oil fuel tanks should be restored so as to expedite change over from oil fuel tanks when contaminated with water. Two 50 ton oil fuel transfer pumps should be installed to augment the inadequate pumping arrangements supplied for transferring fuel from small double bottom tanks. Modification necessary to positioning of damage control and lower steering position and telephone exchange. As grouped in ORION this resulted in a large loss of key personnel and destruction of communication and control of the ship due to one hit.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DIDO 29th May, 1941 D.N.C.4B/R80	One Direct Hit 500 kgm delay action fuzed Bomb. Several near miss size and type unknown Bombs	5 months, including 2½ months permanent damage repairs and refit in U.S.A.	DIDO was attacked by dive bombers during the evacuation of Crete, and a direct hit struck and perforated the roller path of "B" turret, exploding just above the forecastle deck. Severe structural damage was sustained between the lower and forecastle decks 34-48 stations. 'Q' turret trunk was fractured and the roller path distorted. Minor fires started in the cinema projector room, and from cordite in 'B' turret. 'B' and 'Q' magazines were flooded as a precautionary measure. Fumes from the fires were drawn into the forward boiler room and the ship had to alter course to prevent evacuation of the compartment. Minor underwater damage was caused by many near misses. Fighting Efficiency - Not seriously impaired. "B" turret was out of action. Note:- Had "Q" turret been mounted, this would have been out of action due to the damage sustained. This incident confirmed the results of the 5.25 inch mock-up (flash) trial in job 74 (18-5-38)
PERTH (H.M.A.S.) 30th May, 1941	No. unknown Near Miss size and type unknown Bombs	4½ months	PERTH was damaged during the evacuation of Crete. Near miss bombs. The ship was severely shaken by near miss bombs and the structure was generally strained throughout. Extensive weeping of riveted connections of the outer bottom plating and minor flooding by oil fuel occurred. Superficial damage was caused by splinters. Fighting Efficiency - Not seriously impaired. 4 inch and 6 inch fire control tables were out of action due to shock. Endurance was reduced due to contamination of oil fuel.
CALCUTTA 1st June, 1941	Two Direct Hit, size and type unknown Bombs	Sunk	CALCUTTA, during the evacuation of Crete, was hit by two bombs and sunk in a few minutes. No further information is available.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MANCHESTER 23rd July, 1941 D.N.C.4B/R81	One Contact Torpedo dropped by aircraft	9 months, including 7 months permanent repairs in U.S.A.	MANCHESTER was attacked whilst escorting a convoy in the Mediterranean. The torpedo struck the port side aft, and a hole, 8 ft. in diameter was blown in the outer bottom. External damage was mainly confined to Y4 oil fuel tank. Severe internal damage extended from the hold to the upper deck. The side armour abreast "X" magazine and shell room was distorted. The port outer A bracket was fractured. Extensive damage was sustained by the high and low power control and communication circuits. The after engine room, "X" magazine, after oil fuel tanks, W/T office, and 4 inch magazine were flooded. "X" turret structure was distorted. Fighting Efficiency - Seriously impaired. Speed seriously reduced due to damaged shafting and flooding of the after engine room. "X" turret and main W/T out of action.
HERMIONE 2nd August, 1941	Rammed submarine	5 days	HERMIONE had her hull plating, at the extreme fore-end on the port side, torn for 14 ft., just above the keel. Minor damage to surrounding plating and framing over this area, port and starboard, was sustained. The bow compartments below the platform deck were flooded for 28 ft. Fighting Efficiency - Not seriously impaired.
PHOEBE 27th August, 1941 D.N.C.4B/R160	One Contact Torpedo, dropped by aircraft	8 months, including refit in U.S.A.	PHOEBE was struck by a torpedo from an enemy aircraft, whilst operating in the Mediterranean. The torpedo struck the starboard side 48 to 50 stations and a hole was blown in the outer bottom 28 ft. by 18 ft. garboard to "F" strakes. Serious internal damage was sustained between 35 and 87 stations, from keel to lower decks. Nearly all compartments 34 to 57 stations were flooded to the waterline and H.P. and L.P. cables in the vicinity were seriously damaged. The main machinery was undamaged. Fighting Efficiency - Seriously impaired. T.S. and W/T were out of action due to the damage and flooding. A serious loss of oil fuel occurred.
SYDNEY (H.M.A.S.) 19th Nov., 1941	(i) Several Direct Hit 6 inch Shells (ii) One Contact Torpedo	Sunk	SYDNEY was in action against a German raider off Western Australia, when she received several shell hits on the bridge, and amidships, and was later struck by a torpedo forward, which put the forward guns out of action. Ship was down 6 ft. by the bow, with the bridge and amidships on fire. SYDNEY retired at 5 knots and was last seen burning furiously. She was thought to have sunk just before midnight, but there were no survivors.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DUNEDIN 24th Nov., 1941	Two Contact Torpedoes Fired from submarine	Sunk	DUNEDIN, whilst proceeding at 16½ knots, was struck by a torpedo abreast the P.O's mess, starboard. A few minutes later, a second torpedo struck the ship, abreast the wardroom, starboard side. DUNEDIN immediately heeled 15° to starboard after the first hit, and this increased to 35° within 5 minutes. The second torpedo tore up the quarter deck, dislodged No.6 6 inch gun, and blew off the port propellor. The vessel heeled over to 90°, capsized and sank about 20 minutes after being struck. REMARKS This incident revealed the following requirements:- 1. Stronger nets and gratings with a smaller mesh spacing should be fitted on carley floats to keep out voracious fish. 2. Flags and staves should be provided for rafts, etc. 3. Some form of support should be fitted to rafts and carley floats to enable injured men to be supported above the water level.
GALATEA 14th Dec., 1941	Three Contact Torpedoes Fired from submarine	Sunk	GALATEA, whilst operating off Alexandria, was struck by three torpedoes on the port side and sank in 3 minutes. No further information is available.
NEPTUNE 19th Dec., 1941	Three, possibly Four Contact Mines	Sunk	NEPTUNE was operating in the Central Mediterranean at a speed of 24 knots, when a mine struck her on the port side. One, or possibly two more mines exploded under the stem, and part of the after structure was blown away. Preparations were being made to be taken in tow when another mine exploded amidships. The ship heeled to port and sank slowly.
PENELOPE 19th Dec., 1941	One Non-Contact Mine 80 fathoms	2 weeks	PENELOPE was operating in the Central Mediterranean at a speed of 24 knots, when an explosion occurred abreast the bridge on the port side, causing minor structural damage. The main and auxiliary machinery was undamaged. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AURORA 19th Dec., 1941 D.N.C.4B/R207	One Non-Contact Mine Charge 550 lbs. 80 fathoms	13 weeks	AURORA was in the Central Mediterranean proceeding at a speed of 24 knots, when an explosion occurred to port, abreast "B" turret. The port forward oil fuel tanks and store rooms flooded immediately, and slow controlled flooding occurred on the platform deck. The vessel heeled 11° to port, but this was corrected by counterflooding. Extensive buckling of the hull structure was sustained over a length of 120 ft., from the lower deck to the keel. Minor damage was caused to electrical equipment. The shell hoists of "A" and "B" turrets were jammed. Fighting Efficiency - Seriously impaired. The speed was reduced to 10 knots to avoid further damage, but it was later increased to 18 knots. Endurance was reduced due to loss of oil fuel. "A" and "B" shell hoists were out of action. REMARKS This incident emphasised the following points:- 1. Blank scuttle to be fitted with No.4 hose connection for the discharge of portable pumps. 2. Ventilation supply trunking of dynamos to be protected against the entry of water.
ARETHUSA 27th Dec., 1941	One Near Miss Delay action fuzed Bomb	14 weeks including collision damage repairs	ARETHUSA was anchored in Kirkefiord, Lofoten Island, when a near miss bomb dropped 10 yards off her starboard side abreast the after machinery spaces. Only minor structural damage was sustained. The keeps to the sliding feet of the L.P. turbines were bent up. Minor defects were caused to auxiliary machinery castings. Minor damage was sustained by dynamos and electrical gear. The asdic could be used for listening only. R.D.F. temporarily out of action. Fighting Efficiency - Slightly impaired. Ship did 28 knots on return passage to Scapa Flow.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KENYA 27th Dec., 1941	Three Direct Hit 5.1 inch or possibly 4.7 inch direct action fuzed Shells	Nil	KENYA, whilst operating off the Norwegian coast, came under shellfire from the Rugsundo battery. 1st Hit. This shell fell short and ricochetted to burst in contact with the ship's side port, about 10 ft. above the waterline, abreast the bridge. Hole 3 ft. by 4½ ft. in the side plating just below the upper deck. Minor damage was caused internally by splinters. Electrical leads to various services were cut and lighting temporarily lost in vicinity of burst. D.G. Cable was cut. 2nd Direct Hit. Abreast 'Y' shell handing room port side. Burst on the waterline but did not perforate the armour (140 lbs.). Minor damage caused to armour belt and internal structure in vicinity of the burst. 3rd Direct Hit. Abreast No.6 cable passage port side. Burst at platform deck level, did not perforate the armour (130 lbs.). Minor damage to armour belt and internal structure in the vicinity of the burst. Slight leak from oil fuel tank below. Fighting Efficiency - Not impaired.
NAIAD 19th Jan., 1942	Near Miss 500 lbs. Direct action fuzed Bomb	Nil	NAIAD, whilst proceeding south of Crete at a speed of 21 to 28 knots, was attacked by enemy aircraft. A stick of bombs was dropped in a shallow dive bombing attack and fell parallel to the port side. Superficial damage was caused by splinters to the superstructure and hull above the waterline, from fore end of bridge to just abaft 'Y' turret. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CLEOPATRA 11th Feb., 1942	Two Near Miss 500 lbs. direct action fuzed Bombs One Direct Hit 1000 lb. A.P. Bomb possibly rocket assisted	1 Month	CLEOPATRA was dive bombed whilst approaching Malta. 1st Near Miss, 50 yards, abreast port torpedo tubes. Serious splinter damage to P.2 searchlight, circuits of after H.A. director, training gear of port torpedo tubes and port pom-pom. Port R.U. pom-pom magazine pierced, one round exploded and others damaged. Two cased warheads stowed on upper deck set on fire, later jettisoned. 2nd Near Miss exploded in mid-air, port side, possibly by close range weapons. Forward searchlights and H.A. director damaged and circuits cut. Direct Hit starboard side of forecastle deck. Bomb perforated 19 bulkhead, lower deck, watertight door of S.A. magazine and passed out through garboard strake, hole 4½ ft. by 3 ft. just forward of 24 bulkhead. Exploded underwater and caused minor damage to keel for 10 ft. Central store and S.A. magazine flooded. 'A' magazine, A/S compartment and firework magazine partially flooded. 260, 5.25 inch charges in transit cases were stowed in S.A. magazine. Two appear to have exploded and four others burned. Flooding possibly put out any fire started. Fighting Efficiency - Seriously impaired. Both H.A. directors, searchlights, port torpedo tubes and pom-pom out of action. Efficiency of close range weapons reduced due to flooded magazine.
DURBAN 11/12th Feb., 1942	Two Direct Hit direct action fuzed Bombs Near Miss direct action fuzed Bombs	14 weeks Repaired in U.S.A.	DURBAN was bombed by Japanese aircraft during the evacuation of Singapore. Direct Hit starboard side of blast screen to No.2 gun deck. A large hole was made in the deck, and the forecastle deck was split and made non-watertight. Extensive splinter damage in the vicinity, No.2 gun mounting and barrel and U.B.3 height finder perforated by splinters. Direct Hit on upper deck abreast degaussing compartment. Large hole in the deck and severe damage to No.4 gun deck over. Extensive splinter damage sustained. Magazine cooling compartment, degaussing control room, all 6 inch and 4 inch H/A director control and communication circuits in vicinity of the burst pierced by splinters. Starboard after torpedo tubes holed and the mounting displaced by blast. Many near misses off port side. Extensive splinter damage to hull and superstructure above waterline. No.1 searchlight hit, W/T aerials brought down. Stem casting fractured. Fighting Efficiency - Seriously impaired. No.2 6 inch gun, starboard Lewis guns, U.B.3 height finder, magazine cooling and degaussing machinery, after torpedo tubes, W/T and all 6 inch and 4 inch H/A director control circuits out of action by splinter damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EXETER 25th Feb., 1942	Near Miss size and type unknown Bombs	Nil	EXETER was attacked whilst at Tanjong Priok Harbour. Minor structural damage was sustained. Fighting Efficiency - Not impaired.
HOBART (H.M.A.S.) 25th Feb., 1942	Near Miss 250 lbs. mixed direct and delay action fuzed Bombs	Nil	HOBART was attacked whilst at Tanjong Priok Harbour. Extensive but not serious damage caused by splinter to hull and superstructure. Fighting Efficiency - Not impaired.
HOBART (H.M.A.S.) 27th Feb., 1942	Near Miss direct action fuzed Bombs	Nil	HOBART was attacked whilst returning to Tanjong Priok. Many near misses, nearest 20 yards away. Extensive but not serious splinter damage sustained to hull and superstructure. Fighting Efficiency - Not impaired.
EXETER 27th Feb., 1942	One Direct Hit. One Near Miss 6 inch delay action fuzed Shells	Indeterminate See Page 74	EXETER was damaged whilst in action with a Japanese force off Sourabaya. Direct hit in the after boiler room. The near miss under the stern damaged the steering gear and propeller and caused some flooding. Fighting Efficiency - Seriously impaired. EXETER retired from action at 16 knots.
PERTH 28th Feb. - 1st March, 1942	(i) Three Contact Torpedoes fired from destroyer (ii) Several Direct Hit size and type unknown Shells	Sunk	PERTH was sunk during an action with a Japanese convoy in the East Indies. Ship was first hit by a shell which passed through forward funnel before exploding. From then on there were numerous shell hits and one torpedo struck the starboard side forward of 'A' turret. 10 minutes later a second torpedo hit the starboard side abreast the forward engine room. PERTH continued to be hit by shell and a third torpedo hit aft abreast 'X' turret. 55 minutes after the first attack. Ship sank 65 minutes after the first shell hit.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EXETER 1st March, 1942	(i) One Direct Hit 8 inch type unknown Shell (ii) One Contact Torpedo fired from Destroyer	Sunk	EXETER left Sourabaya for Sunda Strait after temporary repairs to damage received on 27th February, 1942. At 1120 a shell exploded in the forward boiler room and started a serious fire which necessitated this compartment being abandoned. Steam power was lost and ship immobilised. Ship was abandoned with a heavy list to port. Ten minutes later a large explosion, probably a torpedo, occurred amidships on the starboard side. EXETER quickly rolled over to starboard and sank at 1150.
SHEFFIELD 4th March, 1942 D.N.C.4B/R105	One Contact Mine	17 weeks including refit	SHEFFIELD was proceeding off Iceland at 12 knots when an explosion occurred under the port quarter. A hole 22 ft. by 22 ft. was blown in the outer bottom port side and severe structural damage sustained between keel and upper deck for 35 ft. from the port side to the middle line. All compartments in the vicinity were immediately flooded up to the waterline. After capstan machinery was lifted and damaged. Electrical circuits in the vicinity of the damage were destroyed putting the steering gear and 'X' and 'Y' turret pumps temporarily out of action. Fighting Efficiency - Seriously impaired. Speed reduced to 6 knots but greater speed was possible in an emergency at the risk of further flooding and damage. 'X' and 'Y' turrets temporarily out of action. 'Y' Shell room out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NAIAD 11th March, 1942 D.N.C.4B/R163	One Contact Torpedo fired from Submarine	Sunk	NAIAD was proceeding at 18 knots in the Eastern Mediterranean when a torpedo struck the starboard side abreast the after end of the forward engine room, 99 bulkhead. Ship listed to 10° immediately and this list steadily increased till ship sank 35 minutes later. The rapid heel and failure of power and light prevented adequate steps to establish a damage boundary or counter flood. Internal lighting and communication systems failed rapidly. The armoured W.T. door to 117 bulkhead was possibly open, allowing further flooding aft, extent not known. Sinking was due to loss of stability upon flooding of two main machinery spaces, partial or complete flooding of a third, the presence of a considerable quantity of free water on the lower deck, 83 to 135 bulkheads and unsymmetrical flooding abreast the explosion. REMARKS This incident emphasised the need for the following items:- 1. Vertical escape trunks to W.T. compartments should be fitted when access is by W.T. door only. 2. Two diesel generators should be fitted well away from main machinery spaces to provide emergency power. 3. Dogs on W.T. doors and hatches should work one way only, height of wedge being increased to prevent dogs overriding and becoming jammed. 4. Design of flotanets should be improved. 5. Carley floats should be stowed on sloping ramps to facilitate launching and space provided to be kept clear.
CLEOPATRA 22nd March, 1942	One Direct Hit 6 inch direct action fuzed Shell	Nil	CLEOPATRA received a direct hit on the starboard side of the bridge about 2 ft. above the deck. Starboard A/A lookout position wrecked. Other minor structural and splinter damage. Starboard A.D.O's sight, starshell deflector calculator and associated electrical equipment wrecked. Other minor damage to electrical circuits, rigging and aerials on bridge in vicinity of burst. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENELOPE 26th March, 1942 D.N.C.4B/R231	Two Near Miss 250 lbs. and 500 lbs. direct action fuzed Bombs	2 weeks temporary repairs See Page 80	PENELOPE, lying at Hamilton Wharf, was often the main target when the Grand Harbour, Malta, was subjected to many dive bombing attacks over the period 25th March to 8th April, 1942, and numerous near miss bombs caused minor damage which is not described in the following. 500 lbs. near miss, burst under forecastle abreast 'A' turret, port side keel and adjoining strakes fractured and set up over a length of 40 ft. to maximum of 2 ft. Hull structure buckled and set inboard over a length of 65 ft. port and starboard. All decks lifted and most watertight doors strained. Forward magazines flooded. Practically all electrical power lost forward of the bridge. H.A. director and D.C.T. distorted and difficult to train 'A' turret, unable to train due to buckled decks. 250 lbs. near miss abreast 'Y' turret, port side. Severe blast damage to superstructure. Minor structural damage inboard. Most oil fuel tanks, all magazine and shell rooms with the exception of 'Y' flooded. No serious damage to main or auxiliary machinery. Fighting Efficiency - Seriously impaired. 'A' and 'B' turrets out of action. 6 inch A.F.C. table distorted and out of action. Type 284 and 285 R.D.F. sets out of action. Endurance seriously reduced due to loss of oil fuel.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRINIDAD 29th March, 1942	Two Direct Hit 5 inch direct action fuzed Shells	Indeterminate See Page 81	TRINIDAD, whilst escorting a convoy off North Russia, came into action with a German Destroyer (NARVIK Class). She was steaming at about 30 knots during the engagement. Two direct hits holed the port side about lower deck level, one abaft and the other just forward of 'Y' turret. Minor splinter damage was caused and the firemain was fractured. Minor flooding occurred into breaker room. Electric cables to breaker room, 'Y' turret shell hoist motor and telephones cut. Fighting Efficiency - Not impaired. Note:- TRINIDAD was also damaged by her own torpedo - For details see Page 465. REMARKS In later vessels and new construction the following actions are being taken wherever possible:- 1. Ventilation trunking to main switchboard room to be closed to prevent flooding. 2. New position of switchboard room to obtain better protection. 3. Disposition of main switchboard room, D.C.H.Q. and secondary electrical position to be adjusted. 4. Damage control communications to be improved and independent of electrical power. 5. Supply of floodlights, headlamps, etc., to be speeded up. Limited supply proved invaluable. The following are under consideration:- 1. Increase rating of emergency fuses in the M.S.S. and emergency terminal boxes. 2. Use of crane supply cables as an emergency supply to the upper deck.
PENELOPE 4th April, 1942 D.N.C.4B/R231	One Near Miss 500 lbs. direct action fuzed Bomb	Indeterminate Damaged whilst undergoing repairs. See Pages 76 and 80	PENELOPE was at Malta in No.4 dry dock with about 11 ft. of water in the dock. A direct hit occurred on the port after brow, the bomb exploding just below. Hundreds of small splinter holes were made above and below waterline on port side aft. A minor fire started in captain's store and in port after cabins. The port outer shaft was punctured by splinters and the propellers damaged. Fighting Efficiency - Not seriously impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DORSETSHIRE 5th April, 1942 D.N.C.4B/R158	Ten Direct Hit. Several Near Miss 250-500 lbs. mixed delay and direct action fuzed Bombs	Sunk	DORSETSHIRE, whilst proceeding from Colombo to Addu Atoll at 27 knots, was dive bombed by enemy aircraft. Direct Hit on the quarter deck put the steering gear out of action. Direct Hit on the catapult wrecked both W/T offices. Direct Hit port side amidships put all the A.A. armament on the port side, with the exception of the pom-pom, out of action. Direct Hit through the base of the foremost funnel put 'A' boiler room and S.1 H.A. mounting out of action. Direct Hit on the quarter deck put 'X' turret out of action and flooded the magazine. Direct Hit through the base of the after funnel caused the H.A. Magazine to explode, and put both pom-poms out of action. The ship heeled heavily to port within five minutes of the first attack. Serious fires occurred on the upper and stoker's mess deck. All communications, W/T and A.A. armament except the .5 inch machine guns were out of action. The ship sustained damage from several near misses during the attack, and later sustained four more direct hits. The vessel lost speed, heeled heavily to port, turned over on her side, and sank, stern first, about 8 minutes after the first attack.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CORNWALL 5th April, 1942 D.N.C.4B/158	Nine Direct Hits. Six Near Miss 250-500 lbs. mixed delay and direct action fuzed Bombs. One Direct Hit direct action fuzed Oil Bomb	Sunk	CORNWALL was dive bombed by enemy aircraft whilst proceeding at 27 knots from Colombo to Addu Atoll. Near Miss abreast the bridge, port side, flooded the port bulges, wrecked the L.P. room, and dislocated all electric power. The steering motors also failed. Direct Hit between the forward and centre funnel partially wrecked 'A' boiler room fan flat. Near Miss abreast the starboard hangar exploded close to the after engine room, as a result of which the engine room became flooded. Direct Hit, port side, between 'X' and 'Y' turrets. Direct Hit in neighbourhood of the dynamo room. No.1 and No.2 dynamos were put out of action and a fire started. Direct Hit exploded on the starboard P.V. and splinters pierced 'B' barbette. Near Miss abreast foremast, starboard side. The main steam pipe joint leaked, and the boiler room was evacuated due to flooding and escaping steam. Direct Hit in vicinity of main switchboard room, starboard side. Severe damage was caused and the compartment was evacuated due to flooding. Direct Hit in the sick bay flat caused a fire, and many important personnel were killed. Direct Hit on the waterline abreast hangar, starboard side, burst in the forward engine room. The main steam pipe was cut, and a fire started. The compartment was evacuated. Direct Hit in the recreation space. Killed first aid parties. Near Miss under the fore end, port side. "B" boiler room was open to the sea, and all boilers were shut down temporarily. Near Miss port side of "B" boiler room caused the compartment to be evacuated, due to flooding. Direct Hit with an oil bomb on S.1 H.A. mounting. Direct Hit on quarter deck killed important personnel. Near Miss abreast the catapult, port side, caused bulges in the vicinity to be flooded. Power and circuits to all armament failed shortly after the hits. In less than five minutes, all power, main W/T and telephones were out of action. Both boiler rooms and engine rooms flooded rapidly. The port gunwale was awash, and the starboard outer propellor was breaking surface. Vessel heeled 70° to port and sank by the bows twelve minutes after the first attack.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENELOPE 8th April, 1942 D.N.C.4B/R231	Near Miss 500 lbs. direct action fuzed Bombs	5 months repaired in U.S.A. See also Pages 76 and 77	PENELOPE was undocking from No.4 dock at Malta when a direct hit on the starboard brow burst ten yards from the ship abreast the refrigerator compartment. This burst caused hundreds of splinter holes above and below the waterline on the starboard side forward. Later, when PENELOPE was undocked and lying alongside Canteen Wharf, sticks of bombs were dropped parallel to the port side and ten yards off the port quarter. Further minor damage was caused by splinters to the plating above the waterline. Fighting Efficiency - Further impaired. PENELOPE put to sea later in the day en route for Gibraltar. Speed was restricted to 20 knots, but was later worked up to 27 knots.
EDINBURGH 30th April - 2nd May, 1942	Three Contact Torpedoes fired from submarine. One 21 inch Torpedo fired by own forces	Sunk	EDINBURGH, whilst proceeding off North Russia, at 19 knots, was struck by two torpedoes. There was an immediate list to starboard. 1st torpedo struck abreast the foremast, starboard side, and caused the immediate flooding, up to the waterline, of all compartments in the vicinity. 2nd torpedo hit the starboard side aft. The hull in way of the steering compartments was destroyed, and the starboard inner 'A' bracket was carried away. Later the stern abaft 'Y' turret broke off. The ship settled 7 feet by the bow. 'Y' turret was jammed and out of action. Combined damage put all turrets temporarily out of action, but they were later in local control. Ship was taken in tow, but later proceeded under her own power at 2 knots, steered by main engines. The speed was increased to 8 knots and the ship was turning in circles while engaging enemy destroyers, when she was torpedoed again. 3rd torpedo abreast A.E. of hangar, port side, caused flooding of all compartments in the vicinity not already flooded by the first hit. 'A' boiler room was evacuated due to flooding. The ring main was cut and lighting failed in the forward section of the ship. The vessel was out of control and was abandoned. She was then torpedoed by FORESIGHT. REMARKS When steam pressure is seen to be falling, the main engine manoeuvring valves should be closed to keep auxiliaries going, and to facilitate the recovery of propulsive power.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRINIDAD 14th - 15th May, 1942	(i) One Direct Hit One Near Miss delay action fuzed Bombs (ii) Three 21" Torpedoes fired by own forces	Sunk See Page 77	TRINIDAD, whilst proceeding from Kola Inlet to Hvalfjord at 20 knots, was attacked by enemy aircraft. A direct hit penetrated decks between the bridge and 'B' turret and burst on or near the lower deck, 53 station just forward of the torpedo damage (29th March, 1942). Holes 20 ft. by 30 ft. were blown in the forecastle deck and upper deck, and considerable blast damage was sustained in the superstructure. The port side of 'B' Gun deck was blown away. A serious fire started and spread between decks. The fire could not be fought effectually due to the speed which was necessary to avoid torpedo attacks. The steering position and bridge were abandoned due to fire and smoke. Shoring to torpedo damage and residue oil fuel increased the intensity of the fire. The vessel stopped at 2315. Near Miss, starboard side of bridge, burst under water abreast 53 bulkhead, making a large hole in the ship's side and blowing in the temporary patch over the torpedo damage. 'B' barbette was split between the forecastle and upper decks. 'B' magazine, handing room, and adjacent compartments flooded immediately, and 'B' shell room flooded slowly. The combined damage of both bombs put the temporary D.C.H., No.2 transmitter room and communications out of action and destroyed the forward section of the fire main. All L.P. and H.P. forward of 71 bulkhead failed. There was no damage to the main machinery spaces. An immediate 14° heel to starboard was corrected to 11° by counter flooding, but gradually increased to 14° when the vessel was abandoned. The fire was out of control and the vessel was sunk by torpedoes from own forces at 0120/15th. REMARKS This incident emphasised the need for the following:- 1. Reduction in the use of inflammable materials between decks. Trials are in hand to ascertain alternative materials less productive of smoke. 2. Strengthening of W/T doors and clips. 3. Increase in the supply of breathing apparatus.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIVERPOOL 14th June, 1942 D.N.C.4B/R120	(i) One 17.7 inch - 440 lbs. Contact Torpedo (Italian) dropped by aircraft. (ii) Two Near Miss 100 kgm delay action fuzed Bombs (iii) Cannon Fire	13 months including refit	LIVERPOOL was escorting a Malta Convoy and steaming at 21 knots, when she was struck by a torpedo abreast the after engine room at 165 station starboard. A hole, 24 ft. by 19 ft. extending from the 3rd to above the 6th longitudinal, was blown in the outer bottom and severe damage was caused from the 1st longitudinal to just above the platform deck for a length of 60 feet. The lower deck was bulged up 3 ft. The after boiler and engine rooms, starboard oil fuel tanks and compartments up to the lower deck flooded immediately and controlled flooding took place in the engine room. An immediate 7 degree heel to starboard was corrected slightly by flooding 'A' and 'B' magazine and shell rooms. The after engine room was wrecked and the starboard outer and both inner shafts were put out of action. The steering gear jammed. 'X' and 'Y' turrets were unable to train due to loss of power. Whilst in tow LIVERPOOL was dive bombed and two near misses dropped to starboard within 15 ft. of the ship. The list increased to $9\frac{1}{2}$ degrees and the ship settled by the stern. Fighting Efficiency - Seriously impaired. The ship could only proceed at 3 knots, on the port outer shaft. Due to loss of power the steering gear, after 6 inch group, after H.A. director and 4 inch shell hoists were temporarily out of action. The W/T, R.D.F. and main armament were out of action. Near misses put three guns of the starboard pom-pom out of action and damaged the H.A. tables. The efficiency of the 4 inch armament was reduced due to an oil fuel leak in the magazine. Two Oerlikon guns were put out of action by cannon shells. REMARKS This incident emphasised the need for:- 1. Suitable adaptors, for pumping out oil fuel tanks filled with water, to be supplied (C.A.F.O.1965/42). 2. Suction systems of new construction ships to be modified. 3. Steam or hydraulic ejectors to be fitted to bathroom drains near the waterline. 4. Rapid flooding arrangements to be fitted where size and position of spaces afford the possibility of substantial correction of heel. 5. Strainers fitted over hose connections on suction system to be redesigned to enable the connection to be tightened. The experience of LIVERPOOL demonstrated the great value of door sills.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NEWCASTLE 15th June, 1942 D.N.C.4B/R233	One Contact Torpedo fired by E-Boat	5 months repaired in U.S.A.	NEWCASTLE was proceeding at 15 knots in the Mediterranean, when she was struck by a torpedo on the starboard side abreast the cable locker. A hole 30 ft. by 12 ft. was blown in the hull plating, and adjacent plating was distorted. The forward end of the lower deck was torn up on the starboard side. Internal structure was seriously damaged and starboard cable locker destroyed. The petrol compartment and the main central store was flooded. No major damage occurred to machinery or armament. Fighting Efficiency - Seriously impaired. The ship was only able to proceed at reduced speed, and the S.A. gear was out of action.
CAIRO 15th June, 1942 D.N.C.4B/R220	(i) Two Direct Hit 6 inch direct action fuzed Shells (ii) Six possibly Seven "Shorts" 6 inch mixed direct and delay action fuzed Shells	6 days	CAIRO, whilst in action, with Italian cruisers and a destroyer, was damaged by shell fire. Direct hit occurred at 144 station starboard, 10 ft. below the waterline. The shell entered an oil fuel tank, but did not explode, causing a hole in the outer bottom 20" by 14" and in the inner bottom 5" by 3". Minor controlled flooding took place and leaks occurred in several oil fuel tanks. No.3 Dynamo was put out of action. Direct hit was made on a stanchion at 60 station starboard. Minor splinter damage occurred to the upper deck and to the superstructure in the vicinity of the burst. Shorts, two fell 20 ft. abreast the forward S.A. magazine, starboard. The outer bottom was dented by splinters and dished below the waterline. Short on the port bow, abreast 40 station, caused minor indentations to hull by splinters. Shorts. Three or four, about 20 ft. off starboard quarter caused minor damage by splinters to hull above the waterline. Fighting Efficiency - Slightly impaired. Endurance was reduced due to leakage of oil fuel tanks.
ARETHUSA 15th June, 1942	Near Miss size and type unknown Bombs	Nil	ARETHUSA, whilst escorting a convoy to Malta sustained minor damage from near misses. Fighting Efficiency - Not impaired.
BIRMINGHAM 15th June, 1942	One Near Miss size and type unknown Bomb	Nil	BIRMINGHAM, whilst escorting a convoy to Malta, was damaged by a near miss bomb. Damage was sustained to the armament, and 2 6" guns were put, temporarily, out of action. Fighting Efficiency - Temporarily seriously impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HERMIONE 16th June, 1942 D.N.C.4B/R167	One Contact Torpedo fired from Submarine	Sunk	HERMIONE was struck by a torpedo whilst escorting a convoy south of Crete, ship was steaming at 13 knots when explosion occurred. A torpedo struck abreast the after engine and boiler room, about 117 station starboard. Vessel listed 22 degrees to starboard within one minute. The list steadily increase until she was on her beam ends. Immediate flooding of 'B' engine room took place quickly, followed by the flooding of 'B' boiler room, 'X' magazine and forward engine room. Extensive flooding occurred amidships above the lower deck. Extensive structural damage abreast the explosion was caused and the starboard torpedo tubes were thrown across the deck. All electric power to the after section of the ship failed immediately, but the forward section remained on and all secondary lighting functioned correctly. HERMIONE hung on her beam ends about three quarters submerged and trimmed by the bow for 7 minutes, then suddenly turned over and sank by the stern 21 minutes after torpedo struck.
CANBERRA (H.M.A.S.) 9th Aug., 1942 D.N.C.4B/R189	Twenty seven possibly more Direct Hits 5 inch possibly 5.5 inch mixed delay and direct action fuzed Shell	Sunk	CANBERRA was attacked by enemy cruisers or heavy destroyers whilst patrolling off Tulagi during American landings on the Solomons. First salvo burst in the plotting office, port torpedo space and 4 inch gun deck and the aircraft was set ablaze. Second salvo put the ship out of action, shells burst in 'A' and 'B' boiler room fan flats and in both boiler rooms and large fires were started. Hits were also registered on 'A' barbette, after end of torpedo men's mess, 'A' and 'B' turret supports, stokers mess, seamen's lower mess, torpedo control platform, preparing room, regulating office flat (Put D.C.H.Q. out of action), 4 inch flat, regulating office, upper bulge, after engine room, after director, 'X' turret, cypher office, and one in 'Y' shell handing room, which did not explode. Starboard hits were in sick bay dispensary, and starboard pom-pom magazine, where a small fire was started, later becoming out of control. About 27 hits were registered within 2 or 3 minutes. CANBERRA was on fire forward and aft, with a 7 degree list to starboard and R.U. ammunition on the upper deck exploded. All lighting, power and fire main pressure failed. The list increased to 30 degrees in 5 hours. The fires finally got out of control and the ship was abandoned about 5 hours after first salvo. CANBERRA was sunk by American forces - 2 hours after being abandoned.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KENYA 12th Aug., 1942 D.N.C.4B/R122	One Contact Torpedo fired from Submarine	5 months including refit	KENYA was torpedoed whilst escorting a convoy to Malta, at 14 knots. The torpedo hit near the stem and the forefoot, and structure between the keel and lower deck, forward of, and including No.6 bulkhead, was destroyed. Severe structural damage extended aft to No.11 bulkhead from keel to upper deck. Flooding of all compartments to the waterline occurred forward of station 14. The echo sounding gear was out of action due to shock. Fighting Efficiency - Not seriously impaired. The ship steamed at 25 knots after damage, but high speed was only possible in ideal weather.
CAIRO 12th Aug., 1942	(i) One Contact Torpedo fired from Submarine. (ii) One Torpedo, fired by own forces	Sunk	CAIRO, whilst proceeding in the Mediterranean at 8 knots, was struck by a torpedo on the port side aft. The ship immediately lost way and settled by the stern with a slight heel to starboard. The stern, including the after 4 inch mounting, was blown off, and the upper deck was awash to the after superstructure. Extensive flooding occurred abaft the machinery spaces. The starboard engine was unserviceable, and the port propellor was lost. The ship was abandoned and sunk by own forces 1 hour 24 minutes after being hit.
NIGERIA 12th Aug., 1942 D.N.C.4B/R164	One Contact Torpedo fired from Submarine	10½ months Repaired in U.S.A.	NIGERIA, whilst proceeding at 14 knots in the Mediterranean, was struck by a torpedo on the port side, abreast the foremast, and below the platform deck. Severe structural damage was sustained between the keel and upper deck, port side for a length of 40 ft. The side armour was severely damaged on the port side. All compartments in the vicinity of the explosion, including the forward boiler room, flooded to lower deck level. An immediate heel to port of 15° increased to 17° in 3 minutes, and was corrected to 4° by counterflooding. All electrical power failed, and the steering gear was jammed amidships. A minor fire started near the E.R.A's mess. Fighting Efficiency - Seriously impaired. The forward unit was out of action due to flooding of the forward boiler room. A speed of 16 knots was maintained by two outer shafts. The lower steering position, 6 inch T.S., switchboard and telephone exchange, No.1 and 2 transmitter rooms, No.2 and 4 breaker rooms, forward H.A.C.P., No.1 and 2 L.P. rooms, and D.C.H.Q. were all put out of action. 6 inch and 4 inch armament was workable in local control only.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MANCHESTER 13th Aug., 1942	(i) One Contact Torpedo fired from E-Boat (ii) Scuttling Charges	Sunk	MANCHESTER, whilst escorting a convoy to Malta, was struck by a torpedo abreast the after engine room on the starboard side. The ship was immobilised with a 12° heel to starboard. The after engine room, and adjacent compartments, including the oil fuel tanks and 4 inch magazine, flooded immediately. Two dynamos were put out of action and only the port outer shaft was in operation. Emergency power was supplied and heel reduced to 5° by counterflooding. MANCHESTER was abandoned while still immobilised, and was finally sunk with the aid of scuttling charges.
KENYA 14th Aug., 1942 D.N.C.4B/R122	One Near Miss size and type unknown Bomb	Nil See Page 85	KENYA, whilst escorting a convoy to Malta, was struck by a bomb, which glanced off the side armour just below the upper deck, port side, and exploded under water. Severe shock was felt within the ship, but no serious failures occurred. Minor damage was sustained by the electrical equipment, and echo sounding gear was put out of action. Fighting Efficiency - Not impaired. Note:- KENYA was already damaged by torpedo (See page 85).
COVENTRY 14th Sept., 1942	(i) Three or Four Direct Hit delay action fuzed Bombs. (ii) Shellfire, depth-charges and finally a torpedo all fired by own forces.	Sunk	COVENTRY, whilst in action during landings at Tobruk, received three or four direct bomb hits, and also sustained damage by machine gun and cannon fire. 1st direct hit occurred on bows, forward of No.1 gun. Fore end structure above the waterline was wrecked, and serious fires started. The forward 4 inch magazine was flooded as a precautionary measure, but the flooding of the pom-pom magazine was not possible, due to wreckage and fires. 2nd and probably 3rd direct hit on forecastle deck, exploded under the bridge. The bridge structure, flag deck, and radar receiving office were wrecked. Fires started in vicinity of the bridge and all communications were severed. 4th direct hit occurred abaft the after funnel and exploded in the forward boiler room. The boiler room and deck over it was wrecked, and the radar transmitting office was put out of action. The ship was stopped to effect temporary repairs, but was later able to proceed slowly on one engine with the forward boiler room and steering gear out of action. COVENTRY was on fire forward and aft, and was abandoned in order to avoid possible loss or damage to other units, finally being sunk by torpedo from ZULU, following gunfire and depth charges fired by own forces.
CLEOPATRA 30th Sept., 1942	One Near Miss size and type unknown Bomb	Nil	CLEOPATRA was attacked by a torpedo bomber in the Mediterranean. A near miss caused superficial damage to the superstructure. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PHOEBE 23rd Oct., 1942	One Contact Torpedo fired from Submarine	8 months repaired in U.S.A.	PHOEBE, whilst operating off the west coast of Africa, was struck, on the port side abreast "Q" magazine about 4 feet below the platform deck, by a torpedo. A hole 40 ft. by 30 ft. deep was caused from keel to above the lower deck, and over full length of, and just forward of "Q" magazine. The shell plating from keel to lower deck and for 70 ft. between the fore bulkhead of Nos. 5 and 6 oil fuel tanks to fore bulkhead of "B" magazine and shell room was blown inboard. "Q" magazine and structure in immediate vicinity of hole was wrecked. Serious damage occurred inboard, over area of the ruptured side structure. A length of 70 ft. from keel to between upper and lower deck flooded immediately. Controlled flooding occurred in No.1 L.P. room, "A" magazine, and shell room, S.A. magazine, No.1 transmitting station, and compressor room. The ship heeled 6° to port, which was brought to 4° to starboard by counterflooding. Fighting Efficiency - Seriously impaired. Speed was reduced to 6 knots. "B" mounting was out of action, "A" mounting could not be fired due to weakened structure. All low power equipment was out of action, except navigational compass repeater and main telephone exchange. The following were flooded, and out of action:- 5 forward oil fuel tanks; "B" and "Q" magazines and shell rooms; pom-pom and warhead magazines; Nos.1 and 2 L.P. rooms; Nos. 1 and 2 transmitting stations; and main switchboard room. REMARKS As a result of this incident, the following lessons were learned. 1. A second welding set to be provided for cruisers vide A.F.O.3849/43. 2. Pattern 17069 floodlights to be fitted with a shock resisting lamp holder.
AURORA 8th Nov., 1942	One "Short" 5.1 inch delay action fuzed Shell	Nil	AURORA, whilst in action with enemy destroyers, was steaming at 20 knots, when a shell exploded underwater about 6 ft. from the port outer propeller. The ship's side plating and framing in the vicinity of the burst at platform deck level was buckled over an area of 8 ft. x 4 ft. Platform deck over W.T.C. split for 8" x 4" and the plating was distorted. Minor controlled flooding took place into W.T.C. (Stations 154-162). Fighting Efficiency - Not impaired.

CRUISERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARETHUSA 18th Nov., 1942 D.N.C.4B/R212	One Contact Torpedo dropped by aircraft	12½ months Repaired in U.S.A.	ARETHUSA was proceeding at 18 knots in the Mediterranean when a torpedo struck the port side abreast 'B' turret just below the platform deck. A hole 53 ft. by 35 ft. was blown in the ship's side also large holes in the platform, lower, upper and forecastle decks. Serious structural damage was sustained from abreast 'A' turret to the bridge and from the keel to the forecastle deck. Ship was flooded to the waterline for 100 ft. forward of the after end of the bridge including No.2 L.P. room, lower steering position, four oil fuel tanks, 4 inch H.A. magazine and forward 6 inch magazines and shell rooms. An immediate list of 15 degrees to port was corrected by transference of oil fuel etc. A serious fire developed above the upper deck which enveloped the ship from abreast 'A' turret up to and including the bridge. The bridge was evacuated and as the lower steering position was flooded, the ship was conned from aft. Lighting and power forward of the forward boiler room and all telephonic communications failed. Fighting Efficiency - Seriously impaired. 'A' and 'B' mountings out of action. Speed reduced to 8 knots in fair weather. Under heavy weather conditions slow astern only could be used. Forward oil fuel tanks, low power rooms, H.A.C.P., forward magazine group degaussing gear and gyro compasses flooded and out of action. REMARKS The following actions were taken as a result of this incident:- 1. A.F.O.3320/43 issued to ensure that eyeplates and other facilities are available about the ship, particularly over hatches and ladderways, for the ready transport of portable pumps. 2. Breeching pieces to be supplied on the basis of one per main fire party. 3. Desirable to increase the transfer facilities of oil fuel. 4. An improved form of shock absorbing binnacle required for gyro compasses. Non-magnetic steel to be employed wherever possible at the emergency conning position and provision made for mounting the spare magnetic compass there. A form of inverted shock mounting for gyro compass approved vide A.F.O.3836/43. 5. Desirable to provide a fire resisting textile bag for hammock stowage. 6. Tube levers for tightening watertight doors supplied vide C.A.F.O.229/43.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DELHI 20th Nov., 1942 D.N.C.4B/R221	One Direct Hit 500 kgm direct or very short delay action fuzed Bomb	4½ months including refit	DELHI was proceeding at 14½ knots in Algiers Bay, when a bomb struck the quarter deck, about 10 ft. from the stern, and exploded about 6 ft. below the upper deck. The ship's structure for 26 ft., station 221 to stern, and from upper deck to just above the waterline was blown away or wrecked. Serious damage was confined to above turtle deck and for 25 ft. forward to bulkhead 207. The watertight compartment above the turtle deck was open to the sea. Minor controlled flooding of steering compartment and watertight compartment below occurred. Steaming and steering equipment was intact. Minor fires started in after cabin flat. Six depth charges on quarter deck were blown overboard, but it was thought that they did not explode. Fighting Efficiency - Impaired. Ship remained on patrol. After 5 inch mounting was out of action, due to weakened ship's structure. Speed was reduced to 16½ knots, and helm limited to 18°.
ARGONAUT 14th Dec., 1942 D.N.C.4B/R229	Two Contact Torpedoes fired from Submarine	10½ months Repaired in U.S.A.	ARGONAUT was proceeding west of Galita Island at a speed of 25 knots, when two torpedoes struck the starboard side. Hit No.1 was at station 7 about 3 ft. above keel. The fore end structure for 28 ft. was blown away or wrecked, and abaft this for 16 ft. crumpled backwards and forced to port, all below lower deck. Hit No.2 was aft in W.T.C. below steering compartment about 8 ft. below waterline. Structure for 56 ft. (abaft cut up) was blown away or wrecked. Minor damage occurred as far as abreast 'X' mounting. Compartments forward of bulkhead 16 and aft of cut up were open to the sea. After fresh water tanks, palm compartments, port oil fuel tanks and provision room were flooded. Minor controlled flooding aft of 'Y' magazine and shell room and middle line compartments on platform deck occurred. Ship heeled 7½° to port, and this was corrected by counterflooding. Both inner shafts were bent and 'A' brackets wrecked. 'X' and 'Y' mountings were stiff to train by hand. Remote power control gear for 'X' mounting was flooded. Fighting Efficiency - Seriously impaired. Speed was reduced to 8 knots due to loss of inner shafts and the affect of the wreckage. Manoeuvrable by propellors only, steering gear and rudder were missing. 'Y' turret was out of action due to the danger of aggravating structural damage. REMARKS 1. Supply of heel and trim recorders under consideration, and designs of instruments are being tried on service A.F.O.1339/43 provided for supply and fitting of a heel indicator in the primary and secondary D.C.H.Q's in new construction cruisers and larger ships, and directs that existing ships should report deficiencies through their administrative authorities. 2. Hose connections in strum boxes should be more readily accessible vide A.F.O.401/43.

CRUISERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AJAX 1st Jan., 1943 D.N.C.4B/R228	One Direct Hit 500 kgm delay action fuzed Bomb	9½ months Repaired in U.S.A.	AJAX was damaged during an air attack on Bone Harbour. The direct hit at the base of the funnel passed through B2 boiler and exploded at the fore end of the middle boiler room, between the inner and outer bottoms, which were holed for approximately 12 ft. x 16 ft. The forward bulkhead of the middle boiler room was torn and buckled on the port side, below the lower deck. Minor damage occurred to the after bulkhead and the lower deck, port side, over the middle boiler room, was badly buckled. Extensive splinter damage took place in the middle boiler room and the main steam pipe, ring main and pneumatic tube installations were cut. The two forward boiler rooms, double bottom and wing compartments, in the vicinity of the burst, flooded immediately, and minor flooding occurred in the dynamo room, platform deck, and the after boiler room. The ship heeled $6\frac{1}{2}^{o}$ to port in one hour. B2 boiler was wrecked, B1 boiler was seriously damaged, and the auxiliary machinery in the middle boiler room was extensively damaged. Minor damage occurred to boilers in forward boiler room, by shock. Serious damage was caused to electrical installations and communications. Power failed, temporarily, due to loss of steam. Fighting Efficiency - Seriously impaired. Speed was reduced to 8 to 11 knots, due to two boiler rooms being out of action, and the strained ship's structure in the vicinity of the middle boiler room. The 4 inch and 6 inch guns were out of action. Electrical power was reduced by 50%. REMARKS 1. The design of Admiralty Pattern 54 hand torches to be modified. Starboard auxiliary saturated steam range to be isolated from either side of the after bulkhead of 'B' boiler room. 2. Oil fuel for diesel generators to be stowed as close as possible to the generators, preferably in the same main watertight subdivision vide A.F.O.6019/43.
ACHILLES (H.M.N.Z.S.) 5th Jan., 1943 D.N.C.4B/R249	One Direct Hit 250 or 500 lbs. delay action fuzed Bomb	Temporary repairs carried out immediately. Permanent repairs done during refit and modernisation	ACHILLES was attacked by Japanese aircraft, while operating south of Guadalcanal. The bomb struck and perforated the roof of 'X' turret and detonated over the muzzle end of the right gun cradle. Both the roof and the right side of the turret were blown away, and the left side, and rear plates were distorted. The front plate was blown outwards. Damage was confined to the turret structure. The right gun was dented by the bomb, but the left gun was undamaged. The breech mechanism of both guns was unaffected. Fighting Efficiency - Slightly impaired. 'X' turret was out of action. The Oerlikon gun mounted on 'X' turret was blown overboard. Two main aerials were carried away.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENELOPE 1st June, 1943	One Direct Hit 5.97 inch direct action fuzed Shell	Nil	PENELOPE, whilst bombarding coastal batteries off Pantelleria Harbour, was damaged by a direct hit with a shell. The shell struck a paravane during its flight, and exploded on impact with 'B' gun deck above the seamen's heads. A hole, 3 ft. in diameter was blown in 'B' gun deck, and minor splinter damage was sustained by surrounding structure below the point of burst. Minor electric circuits were cut and the radar type 271 put out of action for 20 minutes. Fighting Efficiency - Not impaired.
LEANDER (H.M.N.Z.S.) 13th July, 1943 D.N.C.4B/R282	One Contact Torpedo fired from Submarine	25 months Repaired in U.S.A.	LEANDER, whilst operating in the Solomon Island area, was struck by a torpedo on the port side just below the side armour and abaft the forward bulkhead of the forward boiler room. The ship's side was holed for 30 ft. by 20 ft. and seriously distorted for 50 ft. by 50 ft. The forward bulkhead of the forward boiler room was destroyed below the platform deck to within 8 ft. of the middle line. The bulkhead between the two forward boiler rooms was strained and leaking, the platform deck and hold was destroyed in the vicinity of the hit. Five forward oil fuel tanks were wrecked and three side armour plates damaged. The forward boiler room, main switchboard room, forward dynamo room, 6 inch transmitting station, No.1 L.P. room and five oil fuel tanks flooded immediately. The forward boiler room was wrecked and the middle boiler room was partially flooded. Auxiliary machinery in the middle boiler room was seriously damaged, and all three H.P. air compressors were damaged by shock. The main switchboard was destroyed and both forward dynamos put out of action. Important H.P. and L.P. electrical cables were damaged. The port torpedo tubes and mounting were displaced and all training gear destroyed. Fighting Efficiency - Seriously impaired. Forward boiler room and fire oil fuel tanks were wrecked. Middle boiler room was put out of action from partial flooding and blast damage. Main switchboard, forward dynamo room, 6 inch T.S. and No.1 L.P. room were flooded and out of action.

CRUISERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CLEOPATRA 16th July, 1943 D.N.C.4B/R283	One probably Non Contact Torpedo fired from Submarine	15 months Repaired in U.S.A.	CLEOPATRA, whilst patrolling off Sicily at 26 knots, was damaged by an explosion on the starboard side in the vicinity of the bulkhead between the forward engine room and the forward boiler room, at about bilge keel level. A hole was blown in the outer bottom 30 ft. by 20 ft., and the surrounding plating forced inboard over a length of 80 ft. The bulkhead between the forward engine and boiler rooms was destroyed. The lower deck over the engine room was blown upwards and the upper deck over the engine and boiler rooms was set up 9 inches. The keel hogged 6 inches in a length of 50 ft. Five side armour plates were displaced. Flooding of the forward engine room and boiler room, H.A.C.P., No.3 L.P. room and starboard forward cable passage occurred immediately while slow flooding of the port cable passage took place. Some of the forward oil fuel tanks were contaminated. The ship listed 6 degrees to starboard. The machinery in the forward engine and boiler rooms was extensively damaged. All electrical equipment in the starboard cable passage was destroyed or severely damaged. Lighting and power in and forward of the forward machinery spaces, and all low power failed. Communications between bridge, main steering position, and engine room failed. A minor fire started in the workshop flat over the forward engine room. Fighting Efficiency - Seriously impaired. Forward engine and boiler room out of action. Ship able to steam at 10 to 11 knots on after unit. All guns in local control. All radar equipment, H.A.C.P., No.3 L.P. room and both gyros out of action.
HOBART (H.M.A.S.) 20th July, 1943	One Torpedo fired from Submarine	17 months, including modernisation	HOBART was operating in the Coral Sea, north east of Australia, when she was struck by a torpedo on the port side abaft 'Y' turret about 4 ft. below the waterline. The stern structure, port side, abaft 'X' turret, was wrecked or seriously damaged. Severe buckling and fractures occurred on the starboard side. The ship was open to the sea in the vicinity of 'Y' magazine group. Serious damage was sustained by 'Y' turret, and in the ammunition lobby, shell room, hoists and handing room. Fighting Efficiency - Seriously impaired. 'Y' turret out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NEWFOUNDLAND 23rd July, 1943 D.N.C.4B/R288	One Contact Torpedo fired from Submarine	9 months Repaired in U.S.A.	NEWFOUNDLAND, whilst proceeding at 25 knots en route from Augusta to Malta, was struck by a torpedo. Torpedo struck right aft, probably on the rudder, the stern structure for 24 ft. below the upper deck was blown upwards and outwards. Protective plating to the steering compartment abaft the rudder post was partly blown away, and the upper deck badly buckled. Forward of this to the cut up, the stern structure was buckled and distorted. The after steering compartment, hold W.T. compartments, and fresh water tanks and store rooms above immediately flooded. Minor flooding occurred in the forward steering compartment, spirit room, and W.T. compartments below, and flour store. The rudder was blown away, and the after steering gear was wrecked. All communications, power and lighting, in and abaft the after steering compartment, were wrecked. Fighting Efficiency - Not seriously impaired. Ship was able to proceed on main engines at 25 knots. Rudder and steering gear were out of action.

CRUISERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UGANDA 13th Sept., 1943 D.N.C.4B/R293	One Direct Hit with Radio Corrected Bomb P.C. 1400 kgm type F.X. delay action fuzed	13½ months Repaired in U.S.A.	UGANDA was at anchor in Salerno Bay, when a bomb struck the after 4 inch H.A.C.S., passed through the ship, and burst under the starboard side at after end of after engine room. A hole was made in the starboard side 20 ft. x 17 ft., with the plating forced inboard from keel to platform deck over a length of 75 ft. The keel was set up over 50 ft. to a maximum height of 11 inches, and the inner bottom was destroyed for 8 ft., and severely distorted for over 80 ft. The platform deck was blown upwards over a length of 30 ft., while the lower deck was bulged upwards over 80 ft. The after engine room, most after oil fuel tanks, starboard gland spaces, No.2 transmitter, radar power, No.3 L.P. and gyro compass rooms flooded immediately. Leakage into the H.P. compressor room, port forward shaft passage and after gland space was controlled. A heel of 7½° to starboard was corrected by counterflooding. The starboard inner H.P. and L.P. turbines, thrust block, condenser, forced lubrication pumps and evaporator were wrecked; the port unit was damaged; the starboard shafts were badly distorted; and the after boiler room was isolated. All electrical power failed temporarily. Power to after pom-pom and director and radar sets was permanently lost. The after 4 inch H.A.C.S. was damaged. The after gyro compass was destroyed. Fighting Efficiency - Seriously impaired. Speed was reduced to 8 knots, with three shafts out of action. 'Y' turret was out of action, due to weakened condition of structure in the vicinity. the after pom-pom and director and 4 inch H.A.C.S., were out of action. REMARKS 1. An improved type of stowage clip for telephone handsets is now fitted A.F.O.6172/44 refers. 2. Approved for "through bulkhead" emergency terminals to be replaced by bracket terminals, where permanent emergency cables are run through bathrooms and other damp compartments A.F.O.2056/46 refers.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SIRIUS 18th Sept., 1943	One Near Miss 250 kgm Bomb	Nil	SIRIUS received a near miss from a bomb which detonated abreast the bridge about 30 ft. from the starboard side. Severe temporary electrical defects were caused by shock but most of these were made good within a few hours. No.1 H.P. dynamo had to be stopped due to failure of the corrosion piece and consequent leakage. This caused the failure of the low power machine in No.1 L.P. room which in turn put the transmitting station out of action. No.3 H.P. dynamo was overloaded and the second low power machine which was fed by this dynamo "came off" the board. Shock damage affected the forward gyro compass and cross levelling gyro in the transmitting station. Fighting Efficiency - Temporarily impaired.
PENELOPE 7th Oct., 1943 D.N.C.4B/R275	(i) One Direct Hit 250 kgm Bomb which did not detonate. (ii) Two Near Miss direct action fuzed Bombs	3 weeks (Partial repair of damage)	PENELOPE, while operating off the west coast of Crete, received a direct hit on the upper deck, port side, abreast 'Y' turret, which travelled diagonally forward, perforated the lower and platform decks, and broke up on the port outer shaft. The holes in the decks were 4 ft. by 2 ft. Immediate flooding to waterline of one after oil fuel tank (Y2), port inner gland compartment, provision room and No.4 breaker room occurred with minor controlled flooding in the after engine room. An immediate 4 degree list to port was corrected by counterflooding of one after oil fuel tank. The port outer shaft was bent and deeply grooved just abaft the stern tube. A near miss detonated about 25 ft. to port abreast 'Y' turret. Serious splinter damage was caused which extended from abreast the mainmast to 'Y' turret and from 4 ft. to 24 ft. above the waterline. Less serious damage extended from the after boiler room to the steering compartment and from the keel to upper deck. The damage involved lighting, ventilation and H.A. fire control cables, 4 inch guns and circuits, after H.A.C.S., 6 inch barrage director and the radar warning equipment. Minor fires were caused by splinters in bedding and clothing. A near miss also occurred 75 yards to port abreast the foremast and resulted in minor splinter damage to bridge structure, foremast and associated electric cables. Fighting Efficiency - Seriously impaired. Temporary reduction of speed due to contaminated oil fuel. Supply to main W/T failed owing to flooded breaker room. The after H.A. and 6 inch barrage directors and all 4 inch guns were out of action owing to splinter damage. Radar warning equipment was temporarily out of action. REMARKS Approved to fit a settling and sullage tank system to deal with contamination of oil fuel by sea water - C.A.F.O.1485/44 refers.

CRUISERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CARLISLE 9th Oct., 1943 D.N.C.4B/292	(i) One possibly two Direct Hit direct action fuzed Bombs Two Direct Hit delay action fuzed Bombs. Two Near Miss direct action fuzed Bombs (ii) Cannon Fire	5 months including conversion to Base Ship	CARLISLE, while operating at a speed of 12 knots south of Scarpanto Strait, received a direct hit (possibly 2) on or near No.4 - 4 inch gun, which was wrecked. The upper deck was holed and distorted by blast and splinters. Two further direct hits, one just forward of and one just abaft No.4 gun, perforated upper, lower and platform decks and the outer bottom, exploding beneath the ship. These hits blew in the starboard side plating and framing abreast after oil fuel tanks and steering compartment. Minor buckling occurred on the port side. A whipping buckle abreast the after boiler room flooded the reserve feed tanks. The stern casting was fractured. Most after end compartments including the after (No.4) magazine, oil fuel tanks and steering compartment flooded to the waterline. Leakage into other compartment, including the after engine room bilges, was controlled. Two near misses on the starboard side, one abreast No.3 gun and the other abreast the after boiler room, caused extensive splinter damage to topsides. Starboard tail shaft and propeller were missing and the port shaft bracket was buckled out of alignment. Electrical installations aft were put out of action and the ventilation system to machinery spaces failed temporarily. A cordite fire in the vicinity of No.4 gun, and other minor fires, were started by splinters. H.A. directors and W/T equipment were seriously damaged by shock, splinters and cannon fire. Fighting Efficiency - Seriously impaired. Ship was immobilised due to loss of starboard propeller and jamming of steering gear. Nos. 1 and 3 guns were in local control, No.2 gun was out of action and No.4 gun wrecked. The H.A. directors were also out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SIRIUS 17th Oct., 1943 D.N.C.4B/R291	One Direct Hit 250 kgm direct action fuzed Bomb Four Near Miss with similar Bombs	4½ months	SIRIUS, while operating at a speed of 21 knots near Scarpanto Strait received a direct hit which struck the quarter deck abaft 'Y' gun, blew a hole 20 ft. diameter in the upper deck and a smaller hole in lower deck. Blast and splinters damaged the lower deck spaces and surrounding structure. There was no flooding from the sea, but the after fresh water tank was damaged and slowly flooded the watertight compartment under the steering compartment and adjacent store rooms. Fires were started in and around after oerlikon R.U. lockers on quarter deck, and amongst debris on lower deck. 'Y' gun house and the right and left hand gun of 'X' turret were damaged by splinters. The after Oerlikon gun was destroyed. 4 near misses detonated off the port side, amidships, causing splinter damage to ship's side and superstructure, and minor damage to internal fittings and electrical equipment. 'C' port torpedo tube, main aerials and radar sets were put out of action by splinters. Fighting Efficiency - Seriously impaired. 'Y' turret, the quarter deck Oerlikon, 'C' port torpedo tube, and several radar sets were out of action. W/T equipment temporarily failed. REMARKS Under consideration to supply small portable oxy-acetylene burning plants for damage control purposes.
CHARYBDIS 23rd Oct., 1943	Two Contact Torpedoes fired from E-Boat	Sunk	CHARYBDIS, whilst on patrol off the French coast in company with LIMBOURNE, was struck by two torpedoes. 1st Torpedo hit the port side near the after boiler room, and the ship rapidly took a list of 20 degrees to port, which continued to increase slowly. 2nd Torpedo hit the port side near the after engine room 10 minutes later. This hit caused extensive structural damage and excessive hogging and working of the decks. The upper deck was blown upwards and the after director displaced. All electrical power failed. List to port increased rapidly and the upper deck was soon awash abaft the break of forecastle. Within five minutes of the second hit the list had reached 50 degrees, and it continued to increase as the ship settled by the stern. The ship suddenly trimmed by the stern, until almost vertical, and remained in this position 2/3rds submerged for about ½ hour, before sinking.

CRUISERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AURORA 30th Oct., 1943 D.N.C.4B/R284	One Direct Hit with 500 kgm direct action fuzed Bomb	5½ months including re-tubing of superheaters	AURORA was operating in Turkish territorial waters when a bomb struck just abaft the after funnel on after conning position. The after conning position was destroyed and P1 - 4 inch mounting was wrecked. Blast and splinters caused damage on and above the 4 inch gun deck, mainly on the port side, abaft the after funnel. P1 and 2 and S1 - 4 inch mountings, both funnels, 7 ready-use lockers on gun deck, the port pom-pom, 3 Oerlikons, certain electrical circuits to the 4 inch guns, the after H.A. director, the port torpedo tubes, various radar sets and the mainmast and main aerials were all affected. Minor damage occurred on the upper deck. A fire on the 4 inch gun deck was caused by exploding ready-use ammunition and burning cordite. A minor fire occurred in upper deck spaces. Fighting Efficiency - Seriously impaired. All 4 inch guns were out of action due to damage and heavy casualties to the guns' crews. 'Y' turret was temporarily out of action due to loss of power. The after H.A. director, H.A.C.P., port pom-pom, 3 Oerlikons and some radar sets were out of action. Speed was reduced to 22 knots to avoid collapse of the after funnel.
BIRMINGHAM 28th Nov., 1943 D.N.C.4B/R286	One Torpedo fired from Submarine	12 months Repaired in U.S.A.	BIRMINGHAM was on passage from Gibraltar to the Levant at a speed of 23 knots, when an explosion occurred forward of 'A' gun abreast the asdic compartment, port side, at approximately keel level. The keel and bottom structure for a length of 45 ft. was blown up into the ship; bottom plating was ruptured for 25 ft. up the port side and 18 ft. up the starboard side. All structure below lower deck and immediately above explosion was destroyed with extensive buckling up to the forecastle deck. The bow dropped 34 inches. Immediate flooding occurred in the forward magazine group and adjacent compartments, including the petrol and asdic compartments, one oil fuel tank and the compressor room. Controlled flooding in one oil fuel tank, ammunition lobby and lower mess spaces also occurred. The ship listed 8 degrees to port, corrected to 6 degrees by counterflooding and transference of fuel. Failure of electrical power at fore end put the forward ventilation system out of action. Fixed structure and roller path of 'A' turret were distorted. 'A' shell room was wrecked. The roller path of 'Y' turret was distorted by whipping. W/T transmission failed temporarily owing to the collapse of some main aerials. Radar equipment was damaged and the power room flooded. The asdic compartment was wrecked. The damage control party were overcome by toxic fumes, presumably from the explosion. Fighting Efficiency - Seriously impaired. 'A' turret and asdic gear were out of action and the forward magazine group was flooded. Endurance was reduced by the loss of oil fuel and maximum speed was 20 knots owing to the damaged bow. The efficiency of W/T and radar equipment was seriously reduced.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NORFOLK 26th Dec., 1943 D.N.C.6/R298	Two Direct Hit 11 inch delay action fuzed Shells	10 months including refit	NORFOLK was damaged by shell fire during a gun action with the SCHARNHORST off the North West of Norway. Hit No.1 was on the starboard side just forward of the forward engine room and above main deck level. The shell struck the main deck about 12 ft. from the ship's side, and ploughed across it for 36 ft. making a gash about 12 inches wide, was then diverted downwards making a hole 6 ft. by 4 ft. in the deck, perforated the port after fan chamber and finally detonated in the port main central store, lower deck, close to the ship's side. Minor splinter damage resulted from the burst and extensive damage on the main deck cabin flat and lower deck machine shop flat was caused by structural splinters in the path of the shell. The oil fuel filling line, firemain, breathing pipes and other services were also cut. Minor controlled flooding in main central store resulted from splinter holes in the ship's side and workshop flat, and in forward engine room from oil fuel and water from the cut firemain and fuel pipes. Minor fires occurred in cabins, on port side in the main central store and in the engineer's spare gear store. Splinter damage affected important circuits of main and 2nd W/T sets and radar equipment. Hit No.2 was on the barbette of 'X' turret just above the roller path. The shell perforated the barbette and roller path, passed through the revolving structure, emerged just below the roller path on the opposite side and passed overboard without detonating. A minor fire in 'X' gunhouse was caused by broken oil pipes. 'X' magazine was flooded as a precautionary measure. Fighting Efficiency - Impaired. 'X' turret was out of action and magazine flooded. The ship was able to continue in action at full speed.
GLASGOW 28th Dec., 1943	"Shorts" Shell	8 days	GLASGOW, whilst in action against German destroyers (ELBING and NARVIK classes) in the Bay of Biscay, sustained minor damage to structure, principally caused by splinters from "shorts". Fighting Efficiency - Very slightly impaired.

CRUISERS - 1943/44

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ENTERPRISE (H.M.C.S.) 28th Dec., 1943	"Shorts" Shell	5 days	ENTERPRISE, whilst in action with German Destroyers (ELBING and NARVIK classes) in the Bay of Biscay, sustained minor damage to structure, principally caused by splinters from "shorts". Fighting Efficiency - Very slightly impaired.
SPARTAN 29th Jan., 1944 D.N.C.6/R322	One Direct Hit with Radio Controlled Glider Bomb type H.S.293 delay action fuzed.	Sunk	SPARTAN, while anchored off Anzio, was hit just abaft the after funnel by a bomb which detonated probably high up in the compartments abreast the port side of after boiler room. A large hole was blown in the upper deck, abreast the port torpedo tubes, also in ship's port side below upper deck. The main mast collapsed to port. The after boiler room and adjacent port wing spaces flooded immediately. Ship heeled 5-10 degrees to port, with lower deck at side below waterline, rapid flooding of port wing spaces above both engine rooms and after boiler room ensued. The emergency bulkhead valve between forward engine and boiler rooms closed through shock, this resulted in ship losing all steam and electrical power. The port torpedo tubes were demolished and the starboard tubes were shifted bodily 2 ft. A serious fire developed in after superstructure. The warheads in port torpedo tubes and ammunition in port pom-pom ready use magazine caught fire. A fire in 'Y' turret was caused by a splinter. Smoke and steam impeded damage control work. Nine minutes later the after engine room and lower deck flats above after machinery spaces were evacuated. 'X' and 'Y' magazines were flooded, ten minutes later, in view of fire danger. Ship heeled 15° to port. Steam was restored to forward engine room 5 minutes later. It was impossible to obtain electrical power due to flooded supply switchgear. Just over an hour after the hit, the ship was abandoned. Ship on beam ends, settled about 10 minutes later in 5 to 6 fathoms of water. REMARKS In order to eliminate the possibility of shock operating the levers of emergency bulkhead valves, a simple locking device has been fitted - C.A.F.O.116/45 refers.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENELOPE 18th Feb., 1944	Two Contact Torpedoes fired by Submarine	Sunk	PENELOPE was proceeding unescorted from Naples to Anzio at a speed of 26 knots, when a torpedo struck the starboard side, well below the waterline, just abaft the after engine room in vicinity of after oil fuel tanks. Flooding probably extended from after engine room to fore end of steering compartment, including after engine room, oil fuel tanks, centre cabin flat and wardroom flat and compartments below. A heel of 9° to starboard and trim by the stern were assumed, speed was gradually lost and the ship turned a complete circle to starboard. 16 minutes later when the ship had practically stopped, a 2nd torpedo struck the starboard side, well below the waterline, in the vicinity of the after boiler room. The after boiler room and probably the forward engine room flooded immediately. PENELOPE heeled heavily to starboard and sank in less than one minute after the second hit.
EMERALD 6th June, 1944	One Near Miss Bomb	5 days	EMERALD, whilst operating off the Normandy beaches, received a near miss which caused minor structural damage and leaks in one oil fuel tank. Fighting Efficiency - Very slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SCYLLA 23rd June, 1944 D.N.C.6/R323	One Ground Mine in nine fathoms. Charge about 1500 lbs.	Indeterminate (Repairs not completed)	SCYLLA was operating off the coast of Normandy at 15 knots when an explosion occurred under the starboard side of the after engine room. The outer bottom plating (starboard) was buckled and corrugated to a maximum depth of 6 inches abreast the after boiler room, engine room and magazine groups, over about a length of 160 ft. Slight buckling occurred on the port side. Internal structure over this area was somewhat buckled and distorted, principally on the starboard side. Slow controlled flooding occurred in the forward and after engine rooms, and in one after oil fuel tank. Leaks occurred in 'Y' magazine and the gland compartment. A heel to starboard of $1\frac{1}{2}^{o}$ was corrected by the transference of oil fuel. Shock caused extensive damage to main machinery castings, and to auxiliary machinery. All L.P. turbine castings were extensively fractured, putting the main engines out of action. The main bearers in the after engine room were distorted and the engines thrown out of alignment. The fixed and sliding feet of turbines were damaged or fractured to a varying extent. Shock also damaged the dynamos and the port and starboard plummer block pedestals in the after engine room. All the keeps to fixed and sliding feet of boilers were bent. Temporary failure of electrical power occurred. The torpedo tubes jumped off their roller paths. Extensive shock damage to W/T and radar equipment was also reported. Fighting Efficiency - Seriously impaired. The ship was able to steam at a slow speed on port outer turbine after 5 hours of repair work. After control position, pom-pom director, both sets of torpedo tubes, both gyro compasses, most radar sets, the forward rangefinder, and 50% of W/T equipment were out of action.
ARETHUSA 24th June, 1944	One Near Miss 250 kgm delay action fuzed Bomb	See next incident	ARETHUSA was at anchor in Seine Bay, when a near miss detonated under water about 25 yards off the port side abreast the after boiler room. No structural damage was caused. Minor shock damage to the master gyro compass and brickwork of all boilers occurred. Keeps to the sliding feet of port H.P. turbines were bent; base of turbo-generator was fractured, but the machine continued to function after damage. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARETHUSA 25th June, 1944	One Near Miss delay action fuzed Mine or Bomb, in 9 fathoms	4½ months, including damage received on 24th June 1944	ARETHUSA was at anchor in Seine Bay, when a near miss exploded about 10 yards astern, after 2 minutes delay, beneath the ship and under 'Y' turret. The hull structure was slightly buckled and some rivets were strained and leaking. Minor controlled flooding occurred in 'Y' magazine, inflammable store, steering compartment and some adjacent watertight compartments. All keeps of sliding feet on L.P. turbines and starboard inner cruising turbine were bent, and the feet of the forward steering unit were fractured. Starboard inner shaft was slightly out of alignment and stiff to turn. 'Y' turret guns jumped in their slides and holding down bolts of the trunnion caps were stretched. Holding down bolts of the after twin Oerlikon on 'Y' turret were fractured. The roller path of H.A. director was damaged. Shock damaged the radar equipment and after gyro compass. Fighting Efficiency - Impaired. The starboard inner shaft was put out of action. 'Y' turret, after H.A. director, twin Oerlikon, the gyro compass, and some radar sets were also put out of action.
GLASGOW 25th June, 1944	(i) Two Direct Hit direct action fuzed Shells (Probably 9.6 inch) (ii) One "Short" direct action fuzed Shell	12 months, including refit and modernisation	GLASGOW was attacked by shore batteries whilst bombarding Cherbourg. Direct Hit No.1 on port side of the hangar caused a hole in the hangar side, 7 ft. x 6 ft. and splinter damage to hangar structure near the burst. Direct Hit No.2 struck and exploded on a port side carley float at forecastle deck level, abreast the after H.A. director control tower. Splinters damaged the superstructure, forecastle deck, radar office, and supports to the after H.A. director control tower. Extensive splinter damage occurred to the lighting circuits and leads to the forward 2 pdr. pom-pom. The after H.A. director was jammed. Minor fires started near the carley floats. A "short" burst close to the stern on the port side, causing splinter damage to the stern contour plate and port side plating aft. Fighting Efficiency - Slightly impaired. The after H.A. director was jammed, and temporarily out of action. The after pom-pom was temporarily in local control. Emergency repairs to the damage were completed in about half an hour.

CRUISERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARGONAUT 30th June, 1944	One Direct Hit 155 mm Shell which did not detonate	Nil	ARGONAUT was at anchor during the bombardment of Normandy beaches, when she was struck by a shell on the starboard side of the quarter deck. The shell passed down through a cabin and out of the ship's side, about 8 ft. above the waterline without detonating. Minor damage occurred in the path of the shell, the hole in the ship's side being 16 inches by 8 inches. Several minor electrical cables were cut. Fighting Efficiency - Not impaired.
FROBISHER 9th Aug., 1944 D.N.C.6/R321	One Contact Torpedo, possibly of "Slow Worm" type fired from submarine	8 months, including conversion to training ship.	FROBISHER was at anchor off the Normandy coast, when a torpedo struck the fore end, about 40 ft. from the bow, and 7 ft. above keel on the port side, near the cable lockers. A hole in the port side 15 ft. long by 10 ft. deep was caused, with surrounding plating forced inboard. A hole in the starboard side 9 ft. long by 6 ft. deep was also made, with the surrounding plating forced outboard. Serious structural damage extended from keel to upper deck over a length of 60 ft. Minor damage extended to the forecastle deck. The fore end, including two of the forward oil fuel tanks was open to the sea, and flooded to the waterline for about 80 ft. This caused minor flooding on the lower deck. Capstan machinery was thrown out of alignment, and could only be worked by hand. The forward 7.5 inch gun (in state of semi preservation) and rangefinder were damaged. Fighting Efficiency - Seriously impaired. Speed was reduced to 15 knots to avoid aggravation of the structural damage forward. Endurance was reduced by the flooding of the forward oil fuel tanks.
AURORA August 1944	One "Short" direct action fuzed Shell	2 days, (partial repair of damage)	AURORA was operating in the Mediterranean, when a shell detonated under water, just forward of the inner port propeller, about platform deck level. Shell plating and platform deck plating close to the ship's side were severely distorted, over a length of 7 ft. The after fresh water tanks were contaminated by leaks. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUSTRALIA (H.M.A.S.) 21st Oct., 1944	Hit by one Japanese suicide plane (VAL)	Not known	AUSTRALIA, while operating off Leyte in the Philippines, was attacked from astern by a suicide plane. The wing of the plane struck the foremast, which diverted the aircraft over the side, where it crashed into the sea. Fierce petrol fires started, followed by many explosions. There were numerous casualties, particularly to bridge personnel. Fighting Efficiency - Seriously impaired. The ship was temporarily out of action as a fighting unit.
AUSTRALIA (H.M.A.S.) 5th Jan., 1945	Hit by one Japanese suicide plane (KATE or ZEKE), which was thought to have carried a small Bomb	Nil immediately See Page 107	AUSTRALIA, while operating with an American Task force in the Lingayen Gulf, was attacked from the starboard side by a suicide plane, which struck the top of No.2 funnel and the aircraft crane, and then dived to hit the port side of the upper deck, about 8 ft. inboard, and immediately abaft P.2 - 4 inch mounting. A large explosion followed. The upper deck plating was holed and set down in the vicinity of the crash, the funnel structure was severely strained, the top plating torn, and the crane jib broken. Extensive, but not serious, splinter damage to superstructure, crane, funnels, waste steam pipes, and R.U. ammunition lockers occurred. A petrol fire started in the vicinity of the crane and P.2 mounting, but it was soon brought under control. Electrical circuits, radar and W/T aerials suffered minor damage. P.2 - 4 inch mounting and two bofors mountings were damaged by blast and splinters. Fighting Efficiency - Impaired. One 4 inch and two bofors mountings were temporarily out of action. The efficiency of the A/A armament was seriously reduced, due to heavy casualties to gun crews and supply parties. Scratch crews for A/A armament were later formed at the expense of the efficiency of main armament.

CRUISERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUSTRALIA (H.M.A.S.) 6th Jan., 1945	Hit by one Japanese suicide plane (VAL), which probably carried a Bomb	Nil immediately See Page 107	AUSTRALIA, while operating with an American Task force in the Lingayen Gulf, was attacked from the starboard quarter by a suicide plane. The plane struck the gunshield of S.2 - 4 inch mounting, hit the upper deck about 18 ft. inboard, and then crashed into the base of No.2 funnel. A large explosion followed. The upper deck was holed and set down in the vicinity of the crash, and the casing and uptake of No.2 funnel were blown in, and extensively damaged. The funnels and superstructure were damaged by splinters. Some damage was sustained by the radar and W/T equipment, but the sets were again operational after temporary repairs. S.2 - 4 inch mounting was seriously damaged, and all controls to it were destroyed. Smoke and flames from a large petrol fire, in the vicinity of the crash, necessitated shutting down the fans to 'A' boiler room, and the temporary evacuation of this compartment. This fire and also a small electrical fire between decks was soon got under control. Fighting Efficiency - Seriously impaired. (With damage incurred in previous attack). S.2 - 4 inch mounting was temporarily out of action. Due to heavy casualties to guns' crews of 4 inch and close range armament, from this and previous suicide crash, it was only possible to man one 4 inch gun either side. Close range armament had to be manned with scratch crews.
AUSTRALIA (H.M.A.S.) 8th Jan., 1945	Hit by two Japanese suicide planes. (DINAHS) The second plane was thought to have carried a Bomb	Nil immediately See next incident	AUSTRALIA was attacked from the port quarter by two suicide planes. The first plane was attacked by patrolling aircraft and gunfire from AUSTRALIA, and was shot down into the sea about 20 yards from the ship. Part of the plane ricochetted and struck the port side abreast the Captain's cabin, just below upper deck level. The only damage was a large indentation in the side plating and one side scuttle broken. The second plane, attacking from the same quarter, was shot down close to the ship and struck the port side below the bridge at the waterline. The plane was thought to have carried a bomb, which exploded on contact with the ship's side. A hole 12 ft. by 8 ft. was blown in the side plating. A provision room, one oil fuel tank, and a bulge compartment were flooded, and the ship developed a 5° heel to port. Slow flooding extended to adjacent compartments, but was controlled when counterflooding reduced the heel. Fighting Efficiency - Further impaired. The ship would not have been suitable for high speed steaming. As a precautionary measure against further structural damage, speed was limited to 15 knots, and a decision was made not to fire the forward 8 inch guns on a port bearing.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUSTRALIA (H.M.A.S.) 9th Jan., 1945	Hit by One Japanese Suicide Plane (TONY)	6½ months, including refit	AUSTRALIA was attacked by a suicide plane, which attempted to crash on the bridge, but missed and the wing tip struck a mast strut, which swung the plane on to the foremost funnel, and then over the side into the sea. The main damage occurred to the funnel, the top third of which was folded over, completely blocking the escape of all funnel gases. This necessitated the temporary shutting down of two boilers in 'A' boiler room. The whole of the funnel structure was badly strained. Radar and W/T aerials were damaged, but these were quickly repaired. Fighting Efficiency - Temporarily impaired. Both boilers that had been temporarily shut down were able to be flashed up again when a hole was cut through both casings, at the top of the funnel, to allow the escape of smoke and waste gases.
DIADEM 28th Jan., 1945	One Direct Hit 5.9 inch direct action fuzed Shell	5 weeks including weather damage and outstanding defects	DIADEM when in action against 3 German NARVIK class destroyers off the Norwegian coast, in company with MAURITIUS received a direct hit which exploded on contact with the forecastle deck just abaft the funnel. The forecastle deck was holed in the vicinity of the burst and the structure of the smith's and shipwright's workshops and torpedo parting space was damaged by blast and splinters. The cables and fittings of the type 282 radar of the port pom-pom and the supply cables to No.3 P and S Oerlikon mountings were damaged by splinters. Fighting Efficiency - Slightly impaired. No.3 P and S Oerlikon mountings could only be worked by hand and the port and starboard pom-poms were without radar control.
MAURITIUS 28th Jan., 1945	One Direct Hit 5.9 inch direct action fuzed Shell	Nil	MAURITIUS, when in action against 3 German NARVIK Class destroyers off the Norwegian coast, in company with DIADEM, received a direct hit which exploded on contact with the ship's side, about 13 ft. above the waterline and abreast 'B' turret. A hole 5 ft. by 4 ft. was blown in the side plating, and the firemain, H.P. air line, electric leads, hot water and steam heating pipes were damaged by splinters. A small fire in a hammock stowage was quickly extinguished. Fighting Efficiency - Not impaired. With adverse weather conditions her sea-going efficiency would have been impaired due to the hole in side plating.

CRUISERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DELHI 12th Feb., 1945	One Explosive Motor Boat probably Italian. Detonation not in contact with ship	Indeterminate (Ship placed in reserve)	DELHI was berthed alongside a wrecked merchant ship in Split Harbour, (Yugoslavia), and screened at the after end by an L.C.F., when an explosive motor boat hit the L.C.F. and blew up. The explosion was about 45 ft. from the port after quarter of DELHI. The stern plating and framing was slightly buckled and the stern contour plate fractured below waterline. The rudder gudgeon casting was fractured, the steering gear stiff to operate at extreme angles, and the lower supports of both 'A' brackets were strained. Leakage occurred into one after oil fuel tank. Shock caused damage to type 271 radar aerial lantern, and temporary failure of power at the after end due to tripping of the after turbo generator and No.2 reciprocating dynamo. Some minor damage was caused by the L.C.F. being thrown against DELHI. Fighting Efficiency - Slightly impaired.
SUSSEX 26th July, 1945	Hit by One Japanese Suicide Plane (VAL)	Nil	SUSSEX was operating with the Eastern Fleet, preparatory to the invasion of Malaya when a suicide plane attacked her from the starboard beam at deck level. It was engaged by the ship's close range armament and burst into flames before crashing into the starboard side, about 3 ft. above the lower deck and abreast the mainmast. The side plating and framing were buckled and set in a maximum distance of 10 inches over a length of 8 ft. and plate laps were opened up. No fires or flooding occurred and damage to some naval stores, stowed in the compartment abreast the hit, was slight. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TERROR 22nd Feb., 1941	Three Near Miss size unknown (Probably 250 kgm) delay action fuzed Bombs	Nil	TERROR was attacked by dive bombers whilst in Benghazi Harbour, and three bombs exploded just clear of the port bulge abreast the 15 inch turret. The force of the explosion was severe and caused extensive internal damage and flooding. Fighting Efficiency - Seriously impaired. 15 inch transmitting station was temporarily out of action. The speed was reduced, due to flooding, and the seaworthiness was impaired. Note. Ten minutes after leaving Benghazi three dive bombers attacked TERROR, but the bombs fell 200 yards clear. Two hours later, two acoustic mines exploded 200 yards off the port beam. TERROR received a severe shaking, but received no apparent structural damage from these explosions.
TERROR 23rd-24th Feb., 1941	Number unknown Near Miss size unknown delay action fuzed Bombs	Vessel was abandoned and sunk	TERROR, when 15 miles off Derna, was attacked by dive bombers, the last bomb of the 3rd stick fell close to the starboard side abreast the bridge. The effect of these explosions was violent, and caused serious structural damage including severe buckling of upper deck abaft 15 inch turret. All lighting and power was lost. The boiler room was abandoned due to fire and flooding and all steam supply was lost. Severe flooding could not be controlled, and TERROR settled slowly with a heavy heel to starboard. The vessel was abandoned with 4 ft. of freeboard forward. In order to increase the rate of sinking, the Commanding Officer of TERROR ordered depth charges set to 50 ft. to be dropped close to the starboard side. TERROR heeled slowly to starboard, capsized and sank. REMARKS As a result of this incident EREBUS was supplied with an additional diesel dynamo. All practicable measures to ensure pumping capacity being available after severe damage, have been taken in ROBERTS and ABERCROMBIE.
MARSHAL SOULT (Late Monitor Depot ship) 10th March, 1941 D.N.C.4B/R66	One Direct Hit size unknown direct action fuzed Bomb	Nil	MARSHAL SOULT, was berthed in No.3 basin during an air raid on Portsmouth when a bomb burst on impact with the forecastle deck edge starboard side at the fore end. A large hole was blown in the forecastle deck and minor splinter damage sustained by the structure in the vicinity of the explosion. Fighting Efficiency - Not impaired. Vessel was not a fighting unit.

MONITORS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROBERTS 11th Nov., 1942 D.N.C.4B/R241	Two Direct Hit One Near Miss probably 500 kgm delay action fuzed Bomb	6 months	ROBERTS, whilst on patrol duties in the anchorage off Bougie, was attacked by enemy aircraft. A direct hit on the top edge of the sloping armour on the port bulge abreast the port engine room burst on impact. The armour was dished 10 inches over an area 10 ft. by 4 ft. A hole 7 ft. by 6 ft. was blown in the side plating and one 2 ft. by 2 ft. in the upper deck. The W.O's mess and ship's office were wrecked. Two compartments of the port bulge inner air space were flooded. A fire was started in the ship's office. A direct hit which passed through the provision issue room, burst on the starboard side of the upper deck, just abaft the funnel. The main deck armour was set down and a hole 12 ft. by 8 ft. blown in the upper deck, compartments in the vicinity of the burst were wrecked. Splinter damage was sustained to the fire main, oil fuel filling line, fresh water and steam heating systems. Two fires were started on the main deck. Both engine room ventilation fans were wrecked and exhaust fans stopped. The engine room was temporarily abandoned. A near miss 20 to 30 ft. abreast the port boiler room caused minor damage to the side structure in the vicinity of the burst. Two compartments of the port bulge outer air space were flooded. The ship heeled 3 degrees to port. Severe damage was sustained to important electrical cables and equipment between main and upper decks in way of the machinery spaces, due to the direct hits. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised due to both engine rooms becoming untenable. Types 285 and 281 radar were out of action. REMARKS 1. Air escape pipes from the feed tanks to be modified so that they terminate at the engine room deckhead below the armour deck. 2. All rising mains from the firemain to have valves fitted below the armour deck.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ABERCROMBIE 9th Sept., 1943 D.N.C.4B/R296	One Contact Mine in 75 fathoms. Probable charge 500 lbs.	11 months (Partial repair of damage)	ABERCROMBIE was performing bombardment duties in Salerno Bay, at a speed of less than two knots, when an explosion occurred abreast the bridge, under the starboard bulge. Major structural damage was confined to outboard of the longitudinal protective bulkhead. The shell plating was holed over a length of 20 ft., and girth 12 ft. outboard from the protective bulkhead. Damage to the bulge structure extended over 130 ft. of the length of which 90 ft. was seriously damaged. The longitudinal protective bulkhead was bulged inboard a maximum of 9", and the sloping bulge armour was displaced abreast the explosion. Bulge compartments over 115 ft. length flooded immediately. Flooding inboard of the protective bulkhead was of minor importance only. A heel of 10° to starboard was corrected by counterflooding. There was no major damage to machinery or electrical equipment. Some lighting failed due to broken lamp bulbs. The 15 inch director control tower was unseated and damaged. Minor shock damage involved W/T and radar equipment. Fighting Efficiency - Seriously impaired. The 15 inch director control tower and type 281 radar were out of action. The 15 inch guns could only have been fired in an emergency owing to the danger of aggravating the structural damage. REMARKS 1. Approved to fit a Lower Power air system, independent of the existing High Power system, and to supply pneumatic tools. 2. Approved to supply MONITORS with one portable electric welding set.

MONITORS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ABERCROMBIE 21st Aug., 1944	Two Contact Moored Mines in 70 fathoms probably type G.R. Charge 90 lbs.	10½ months	ABERCROMBIE was exercising near Malta, when an explosion occurred at the fore end on the starboard side between the hold and lower deck. The engines were put to "stop". The ship's side was split 4 ft. long by 16 ft. deep, and the plating was set in a maximum of 5 ft. The surrounding plating was buckled and corrugated from the garboard strake to the lower deck over a length of 32 ft. The fore end flooded for 40 ft. from the hold to above the lower deck level. A heel to starboard of 4½° was reduced to 2° by counterflooding and transference of oil fuel and weights. Shock damaged the capstan and the refrigerating machinery. Ten minutes later a 2nd mine exploded under the bottom just abaft the mainmast in the vicinity of the cut up. A hole was made in the bottom plating 10 ft. long by 7 ft. wide; and the keel and cut up were destroyed for 14 ft. Plating and longitudinals were set upwards 4 to 6 ft. over a distance of 30 ft. and heavy buckling occurred between the 2nd longitudinal on the port side, and the 3rd longitudinal on the starboard side. The starboard 'A' bracket was torn from the hull. Flooding extended for 52 ft. from the keel to the lower deck level including the steering compartment, after shaft passages, and No.4 pom-pom magazine. Controlled flooding occurred in the forward shaft passages and metadyne compartment. The ship settled by the stern with a slight heel to starboard, which was reduced to 1° by transference of oil fuel and weights. The starboard after plummer block was fractured and the seating of the port block was distorted. The port and starboard tail and intermediate shafts were bent. Radar sets and gyro compasses were damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised due to bent shafts and the loss of steering gear, and had to be taken in tow. The gyro compasses were out of action.
EREBUS 5th Sept., 1944	One Direct Hit Shell	2 days temporary repairs. See next incident	EREBUS was bombarding Le Havre when a shell struck the fore end of her port bulge, passed through the bulge compartment and fractured the main suction pipe. The bulge compartment and those compartments immediately inboard within the damaged area, including the small arms magazine, were flooded. This caused the ship to list 3½ degrees to port and it was not temporarily possible to correct the heel by pumping out, because of the damaged suction pipe. Fighting Efficiency - Impaired. Bombardment with the 15 inch gun was discontinued due to risk of causing further structural damage to the bulkheads of the flooded compartments.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EREBUS 8th Sept., 1944	One Direct Hit Shell	2 weeks including repairs of damage received 5th Sept., 1944	EREBUS was bombarding Le Havre when a shell struck her port bulge, abreast the engine room in the vicinity of the bilge keel. The shell made a hole 15 ins. by 18 ins. in the bulge plating and the bilge keel in the vicinity was badly buckled. The bulge compartment was open to the sea and water leaked into an adjacent compartment through the damaged structure, but the flooding was kept under control. Fighting Efficiency - Not impaired. The ship continued her assigned bombarding duties and remained operational until the immediate task was completed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOHAWK 16th Oct., 1939	Two Near Miss size unknown probably direct action or very short delay action fuzed Bombs	2 months	MOHAWK, while escorting a convoy 1½ miles from May Island, was attacked by aircraft. Both bombs fell about 45 ft. to starboard, one abreast the break of forecastle and the other abreast the torpedo tubes. Damage caused by splinters was considerable but structural damage was not serious. Fighting Efficiency - Impaired. Loss of personnel occurred and director and H.A. rangefinder together with practically all control and gun circuits were put out of action. REMARKS This incident emphasised the need for splinter protection to exposed personnel and to vital communications.
BLANCHE 13th Nov., 1939	One Magnetic Mine in 30 fathoms estimated charge 1,500 lbs. T.N.T.	Sunk	BLANCHE was on anti-submarine patrol with ADVENTURE in the North Sea when an explosion occurred aft, under the port side abreast 'Y' 4.7" gun. Structural damage occurred aft and the ship's back was broken just abaft the engine room. Initial flooding below Lower Deck aft spread to cabin flat and engine room. Ship listed to port and finally capsized and sank. REMARKS This incident emphasised the importance of keeping watertight as many compartments as possible in the after end of damaged destroyers. This and similar cases led to the issue of Appendix III of the Damage Control Handbook (O.U.6331/39).
GIPSY 21st Nov., 1939	One Magnetic Mine in approx. 30 ft. estimated charge 1,500 lbs. T.N.T.	Sunk	GIPSY was proceeding to sea from Harwich when an explosion occurred between Nos. 2 and 3 boiler rooms. The ship's back was broken and she sank almost immediately. The midship portion grounded while the ends remained buoyant for a time until they slowly settled down.

DESTROYERS - 1939/40

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
JERSEY 7th Dec., 1939	One Contact Torpedo 13 fathoms Note:- Torpedo surfaced and struck ship at waterline, fired from submarine	10 months	JERSEY, while proceeding with JUNO at 13 knots off Cromer Knoll was struck on the port side abaft gearing room. Severe structural damage was sustained in the neighbourhood of the explosion, the hole in the ship's side extending from upper deck to bilge keel. Flooding and minor fire damage occurred from the after engine room bulkhead to the after cut-up. Fighting Efficiency - Seriously impaired. The main engines were immobilised and the after torpedo tubes were blown overboard. The ship was towed to port.
KELLY 14th Dec., 1939 D.N.C.4B/R4	One Moored Mine 47 fathoms	10 weeks	KELLY, was operating 13½ miles North of Tyne Breakwater Head, when an explosion occurred in wake of starboard propeller about 6 ft. abaft the stern. The side plating, port and starboard, was corrugated from stern to the cut up, but not punctured. Minor damage occurred to bulkheads in this vicinity with minor flooding. Fighting Efficiency - Seriously impaired. Gunnery efficiency unimpaired. The steering gear was out of action, the stern distorted and the shaft brackets lifted. The ship could have steamed with difficulty at slow speed. REMARKS This incident demonstrated the weakness of lightening holes in brackets and frames. No weakness was apparent in the longitudinal strength of the ship.
GRENVILLE 19th Jan., 1940	One Mine probably Magnetic 20 fathoms	Sunk	GRENVILLE was operating off the Dutch Coast when an explosion occurred. The ship was blown in two and within two minutes the separate portions were almost vertical with the bows 60 ft. out of the water and the stern nearly awash.
EXMOUTH 21st Jan., 1940	Probably Torpedo fired from submarine	Sunk	EXMOUTH was operating in the Moray Firth when an explosion occurred and the vessel sank.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DARING 18th Feb., 1940	Two Contact Torpedoes fired from submarine	Sunk	DARING was escorting a convoy at 8 knots off the Orkney Islands when she was struck by two torpedoes. The ship broke in two, and sank almost immediately.
GLOWWORM 8th April, 1940	Shell and ramming cruiser	Sunk	GLOWWORM engaged a German task force, whilst operating off the Norwegian Coast. Under the cover of a smoke screen, the destroyer rammed the German cruiser HIPPER abaft the forecastle. After the collision GLOWWORM ceased fire, being immobilised with a heavy heel, and apparently on fire. The ship was abandoned, and when the HIPPER left the scene of the action it was considered that GLOWWORM would sink within an hour.
GURKHA (1) 9th April, 1940	Six Near Miss size and type unknown Bombs	Sunk	GURKHA, whilst operating 30 miles off Kors Fjord (Norway) was attacked by enemy aircraft, and six near miss bombs were dropped on the starboard side abreast the gear room from 150 yds. to alongside. Immediate flooding of the gearing room, engine room, and the majority of the after compartments occurred. An oil fuel fire started under the after superstructure. The ship heeled to starboard, with upper deck aft nearly awash, and remained afloat for $5\frac{1}{2}$ hours, with H.A. director, T.S. and foremost guns in action engaging enemy aircraft. About $1\frac{1}{2}$ hours before the ship sank, the Nos. 1 and 3 O.F. tanks were pumped out overboard. REMARKS This incident emphasised the danger of pumping out oil fuel tanks to correct list, so causing loss of stability, and possible subsequent loss of vessel in heavy seas.
HOTSPUR 10th April, 1940 D.N.C.4B/R9	Seven Direct Hits and "Short" Probably 5" number unknown mostly direct action fuzed Shells	2 months	HOTSPUR, while taking part in First Battle of Narvik in Ofot Fjord (Norway), was engaged by enemy destroyers probably of the MAAS Class. The ship sustained seven in number direct hits causing severe structural and splinter damage. A fire was started forward, and minor flooding through splinter holes occurred throughout the ship. Fighting Efficiency - Severely impaired. The R.F. and D.C.T. were put out of action and guns were fired by local control only. The steering gear and No.2 boiler room were also put out of action. Seaworthiness was impaired by danger of flooding through splinter holes, when at speed. REMARKS This action emphasised the need for steel helmets to be issued to personnel in lightly protected positions, and for increased protection to telemotor leads to steering gear. HOTSPUR rammed HUNTER while out of control due to damaged steering gear.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HARDY 10th April, 1940	Twelve Direct Hits and number unknown "Short" probably 5" mostly direct action fuzed Shells	Foundered	HARDY, while taking part in First Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers, probably of the MAAS class. The ship sustained about twelve direct hits, which caused severe structural damage, and put her out of action. The ship was also on fire. The steering gear was in working order and No.4 gun continued to fire, but ship was finally abandoned and drifted ashore and foundered. REMARKS See HOTSPUR Page 117.
HAVOCK 10th April, 1940	Unknown number "Shorts" probably 5" mostly direct action fuzed Shells	Nil	HAVOCK, while taking part in First Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers, probably of the MAAS Class. The ship sustained damage by splinters, but remained in action. Fighting Efficiency - Unimpaired. REMARKS See HOTSPUR Page 117.
HOSTILE 10th April, 1940	One Direct Hit and number unknown "Short" probably 5" mostly direct action fuzed Shells	Nil	HOSTILE, while taking part in First Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers probably of the MAAS class. The ship received one hit forward which caused minor damage, while near misses, when the ship was straddled, caused splinter damage. Fighting Efficiency - Unimpaired. The ship remained in action. REMARKS See HOTSPUR Page 117.
HUNTER 10th April, 1940	Probably Torpedo fired from destroyer Direct Hits and "Shorts" probably 5" mostly direct action fuzed Shells	Sunk	HUNTER, while taking part in First Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers, probably of the MAAS Class. The ship received severe structural damage in vicinity of forward torpedo tubes which were missing. She was on fire and out of control. REMARKS HUNTER finally sank when she was rammed by HOTSPUR. See HOTSPUR Page 117.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ECLIPSE 11th April, 1940	One Direct Hit three Near Miss Estimated 150 lbs. direct action fuzed Bombs	4 months	ECLIPSE, while acting as anti-submarine screen to the Battle fleet off Norway, was attacked by enemy aircraft. The ship sustained a direct hit at the deck edge in the centre of engine room, starboard, causing a hole about 7 ft. in diameter and damage from sheer strake to the bilge keel. The engine room, shaft tunnels, gland spaces and warhead magazine were flooded. Splinters from near misses caused minor damage and affected some fire and torpedo circuits. Fighting Efficiency - Severely impaired. The ship was immobilised, unable to steam and the dynamos failed, due to flooding. REMARKS This incident emphasised the need for all destroyers to be supplied with a 12" manilla rope fitted to shackle on to a cable, with a towing slip at the other end, to facilitate towing arrangements when vessel is damaged.
BEDOUIN 13th April, 1940	One Direct Hit and "Short" Number and size unknown direct action fuzed Shells	2 weeks	BEDOUIN, while operating off Norway, was hit by enemy shellfire. The left gun of 'A' gun mounting sustained a direct hit. Splinters from near misses caused minor damage to hull and superstructure. Fighting Efficiency - Impaired. 'A' gun was put out of action. The rangefinder was pierced by splinters, and the D.G. circuit damaged.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PUNJABI 13th April, 1940 D.N.C.4B/R11	Six Direct Hits One "Short" 5.9" (Estimated) 106 lbs. H.E. direct action fuzed Shells	2 months	PUNJABI, while taking part in the First Battle of Narvik in Ofot Fjord (Norway), was engaged by enemy destroyers and shore batteries. Hit No.1 struck the starboard side, about 2 ft. below the forecastle deck, just abaft 'B' gun mounting. It caused minor structural damage at point of impact, and splinters put the transmitting station out of action, and caused partial disablement of W/T. Hit No.2 struck the forecastle deck on the starboard side abreast fore end of superstructure causing minor structural and splinter damage. Hit No.3 struck the starboard side 3 ft. forward of the collision bulkhead, and 5 ft. below the upper deck level. Minor structural damage was caused and minor flooding at fore end took place when the ship was moving at speed. Hit No.4 struck the edge of the upper deck at the after end of the forward funnel. The ship's boats on the starboard side were damaged and rendered unseaworthy, and splinters started a fire in the cinema film store. Smoke from this fire was drawn into No.2 boiler room by the supply fans, and the boiler room was out of action for about half an hour. Hit No.5 burst on impact with the after end of the 25 ft. motor boat. Splinter damage was caused, and one splinter pierced the exhaust steam pipe in the engine room, causing a temporary loss of efficiency. Hit No.6 struck the starboard side of the ship just below the upper deck, abreast 'Y' gun mounting. Minor structural and splinter damage was caused, the leads to the starboard steering engine telemotor being put out of action. Near Miss exploded on impact with the water on the starboard side just forward of 'A' gun mounting, and caused extensive splinter damage to ship's services. Fighting Efficiency - Impaired. REMARKS This incident emphasised the need for cinematograph films to be landed before action or stowed on weather decks, while fire hoses should be kept under cover until required. Splinter protection is necessary for the transmitting station, and calcium flares should be stowed on the weather deck for ready disposal when damaged.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ESKIMO 13th April, 1940 D.N.C.4B/R12	One Contact Torpedo fired from destroyer	5 months	ESKIMO, while taking part in the Second Battle of Narvik in Ofot Fjord (Norway), was engaged by enemy destroyers. The torpedo hit the starboard side about 25 ft. forward of 'A' gun mounting demolishing the fore end back to this mounting. Flooding occurred below the lower deck to 57 station while minor flooding occurred above the lower deck to 66 station. Fighting Efficiency - Seriously impaired. 'A' gun was completely out of action and 'B' gun could only be fired for a short time. The asdic was destroyed and vessel could not steam ahead.
FORESTER 13th April, 1940	One "Short" 5.9" (estimated) 106 lbs. H.E. direct action fuzed Shell	Nil	FORESTER, while taking part in the Second Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers. The shell caused minor splinter damage to the hull and superstructure. Fighting Efficiency - Unimpaired. The ship remained in action. REMARKS This incident emphasised the need for a greater allowance of steel helmets and for splinter protection to the crew of the torpedo tubes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COSSACK 13th April, 1940	Eight Direct Hits One "Short" 5" (estimated) Seven direct action fuzed Two delay action fuzed Shell	9 weeks	COSSACK, while taking part in the Second Battle of Narvik in Ofot Fjord (Norway) was engaged by enemy destroyers. Hit No.1 exploded on impact with port side between the upper and forecastle decks about 20 ft. forward of 'A' gun mounting causing minor structural and splinter damage. Hit No.2 exploded on impact with port side between lower and upper decks about 25 ft. forward of 'A' gun mounting causing minor structural and splinter damage. Hit No.3 entered port side just below lower deck level about 20 ft. forward of 'A' gun mounting and passed out through starboard side just forward of 'A' gun mounting without detonating. The exit hole was below the waterline causing flooding which put asdic out of action. Hit No.4 struck the port side about 6" below the upper deck level abreast No.2 boiler room. Minor structural and splinter damage was caused and, due to perforated steam pipes, the steam supply to No.1 boiler room was cut, No.2 boiler room was filled with superheated steam and put out of action while No.3 boiler room was immobilised due to steam entering through splinter holes. The splinters also put out of action the steam dynamos, steering telemotor gear and port engine room telegraphs. Hit No.5 exploded on impact with the edge of forecastle deck slightly forward of 'B' gun mounting causing slight structural and splinter damage. Hit No.6 exploded on impact with port side between upper and forecastle deck causing minor structural and splinter damage. The transmitting station was hit by splinters and No.1 magazine was flooded deliberately as a fire precaution. Hit No.7 exploded on impact with port side of forward superstructure just forward of 'B' gun mounting causing minor structural and splinter damage. Hit No.8 exploded on impact with the port aft back stay of forward funnel causing splinter damage. Near Miss exploded on impact with the water on the starboard side abreast 'B' gun mounting causing splinter damage which led to minor flooding. Fighting Efficiency - Severely impaired. REMARKS This incident emphasised the need for increased protection of telemotor leads to steering gear and showed how ship could be immobilised by a single splinter in one steam pipe.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KIMBERLEY 14th April, 1940	Size and type unknown Bomb	Nil	KIMBERLEY while patrolling off Narvik, was attacked by aircraft. Minor splinter damage to the hull was sustained. Fighting Efficiency - Unimpaired.
KIPLING 17th April, 1940 D.N.C.4B/R14	Two Near Miss size unknown delay action fuzed Bombs	3 months	KIPLING while returning from the Stavangar raid, was attacked by an enemy aircraft, which dropped two bombs. The first bomb fell abreast No.1 boiler room, about 30 ft. from the port side of the ship, while the second bomb dropped abreast the after torpedo tubes about 15 ft. from the port side of the ship. The bombs exploded about 30 ft. below the surface and caused only minor structural damage. Fighting Efficiency - Slightly impaired. The after torpedo tubes could only be trained with difficulty. Although the castings to main and auxiliary machinery were cracked, the ship steamed at 30 knots for several hours. REMARKS This incident emphasised the need for the provision of spare lengths of hoses to reach from the fire and bilge pumps to any part of the engine room, and for flexible exhausts to diesel generators. "Semtex" deck coverings were recommended instead of the "Wunder" grip fitted.
GREYHOUND 18th April, 1940	Size and type unknown Bomb	1 month	GREYHOUND was attacked by aircraft and sustained minor structural damage to forecastle and forward mess deck. 'A' gunshield and gun supports were slightly buckled. Fighting Efficiency - Slightly impaired.
ARROW 26th April, 1940	One Direct Hit size and type unknown Shell	2 weeks	ARROW was damaged when a shell struck the port side of the engine room about 4 ft. above the waterline. Minor damage was caused to the structure and machinery. Fighting Efficiency - Slightly impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASHANTI 28th April,1940	Two Near Miss size unknown direct action fuzed Bombs	3 weeks	ASHANTI while patrolling Trondheim Leden (Norway), was attacked by enemy aircraft which dropped many bombs. One dropped near the port side abreast the bridge causing a loss of electrical power with both dynamos disconnected and port castings cracked. Another dropped about 5 yds. from the port side abreast the torpedo tubes causing minor splinter damage and slight leaks to oil fuel tanks. Fighting Efficiency - Slightly impaired.
NUBIAN 28th April,1940	Near Miss size and type unknown Bombs	Nil	NUBIAN while operating off the Norwegian coast, was attacked by enemy aircraft. Near misses caused slight damage to the director. Fighting Efficiency - Not impaired.
WITHERINGTON 29th April,1940	Near Miss size unknown direct action fuzed Bomb	3 days	WITHERINGTON received minor splinter damage to the hull structure. Fighting Efficiency - Not impaired.
WREN 31st April,1940 - 16th May,1940	Size and type unknown Bomb	Nil	WREN while operating off Norway, was attacked by enemy aircraft. Only minor damage was sustained. Fighting Efficiency - Not impaired.
MAORI 2nd May, 1940	Six Near Miss 20 lbs. (approx.) direct action fuzed Bombs	3 weeks	MAORI while operating off Norway near Kya Light, was attacked by enemy aircraft. The bombs dropped close to the port side abreast the torpedo tubes and caused minor damage to structure, miscellaneous instruments and auxiliary machinery. Fighting Efficiency - Not impaired. The W/T was temporarily out of action because the main aerials were shot away.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AFRIDI 3rd May, 1940	Two Direct Hit size unknown delay action fuzed Bombs	Sunk	AFRIDI while operating off Norway was attacked by enemy aircraft. Hit No.1 passed through the galley and forward boiler room and exploded, causing a hole in the side plating port which admitted water to No.2 boiler room. The explosion also caused a fire in the W/T office. Hit No.2 blew in sections of the port side plating abreast No.1 and No.2 guns, started a fire in the after end of the mess decks and also caused the forward compartments to be flooded forward. The ship finally capsized, and sank bow first, 46 minutes after the first attack.
KELLY 9th May, 1940 D.N.C.4B/R18	One Contact probably 21 inch Torpedo fired from E-boat	8 months	KELLY while operating in the Skagerrack was attacked by a German 'E' boat. The torpedo struck the port side causing a large hole to be made 47 ft. long and 14 ft. deep from 7 ft. below the upper deck while the upper deck was damaged over a length of 50 ft. The whole area between the forward bulkhead of 'B' magazine and shell room and the after bulkhead of No.1 boiler room was immediately flooded while No.2 boiler room flooded shortly after. The ship listed 15 degrees to starboard with the upper deck awash. Fighting Efficiency - Severely impaired. The transmitting station, W/T, gyro-compass and low power rooms were all out of action but guns could be operated by local control with reduced ammunition supply. The ship was immobilised and was taken in tow. REMARKS This incident emphasised the need for a reserve diesel generator to be installed in the gearing room to supplement the electrical supply when boiler rooms are put out of action, and for Aldis batteries to be provided both on the bridge and aft. Type 53 W/T set, if carried, should be ready aft. Modifications to pumping arrangements are necessary and ready-use H.A. ammunition should only be jettisoned in cases of extreme necessity.
WHITSHED 10th May, 1940	Size and type unknown Bomb	Nil	WHITSHED sustained minor structural damage and also damage to the director and steering gear. Fighting Efficiency - Slightly impaired.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HESPERUS 12th May, 1940	Three Near Miss size and type unknown Bombs	4 weeks	HESPERUS while operating off Mo (Norway) was attacked by enemy aircraft. The bombs dropped abreast the starboard quarter, the nearest being 20 yds. from the ship's side, causing minor damage to bulkheads and side plating which were buckled and leaking. Fighting Efficiency - Not impaired. REMARKS This incident emphasised the need for greater anti-aircraft protection.
WILD SWAN 12th/13th May, 1940	Near Miss size and type unknown Bomb	Nil	WILD SWAN while operating in the English Channel, was attacked by enemy aircraft. No structural damage was sustained but shock caused both condensers to leak and the main engines had to be temporarily shut down due to priming. The electric lead to the asdic training motor was broken and several low power fuses were blown. Fighting Efficiency - Temporarily impaired.
VERSATILE 13th May, 1940	One Direct Hit several Near Miss 50 lbs. H.E. (approx.) direct action fuzed Bombs Machine gun attack	1 month	VERSATILE while securing alongside the jetty at the Hook of Holland, was attacked by enemy aircraft. A bomb hit the upper deck over the engine room causing minor structural damage. Splinters from this bomb and the near misses caused damage from 'A' gun to quarter deck and the auxiliary machinery suffered minor damage. The machine gun attack caused extensive peppering of the superstructure. Fighting Efficiency - Seriously impaired. The steam pipe to the after auxiliaries burst and ship was immobilised and unable to steam. One third of the ship's company were casualties.
WIVERN 14th May, 1940	Near Miss 500 lbs. direct action fuzed Bomb	4 weeks	WIVERN while operating off the Hook of Holland was attacked by enemy aircraft and sustained a near miss off the port quarter. Structural damage was caused between 140-155 station and splinter holes were made in the side of ship. A serious cordite fire was started (probably by splinters) at 'X' and 'Y' guns and in the after magazine. Fighting Efficiency - Seriously impaired. The after group of B.L. 4.7 inch gun and supply parties were put out of action. REMARKS This incident emphasised the need for the issue of steel helmets to all personnel on upper deck and for anti-flash clothing to gun crews and supply parties. Modification to the fastenings of lids of Clarkson cases is also required.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WINCHESTER 15th May, 1940	Six Near Miss 500 lbs. direct and delay action fuzed Bombs	1 month	WINCHESTER while proceeding to Flushing, was attacked by enemy aircraft. The bombs dropped from 50 to 100 yards from the ship causing very minor hull damage and slight leaks in the oil fuel tanks. The main and auxiliary machinery was severely damaged by the fracture of cast iron fittings. Fighting Efficiency - Seriously impaired. The ship was immobilised by machinery damage.
VALENTINE 15th May, 1940	One Direct Hit one Near Miss 250 lbs. (approx.) direct action fuzed Bomb	Beached on territory later in enemy occupation	VALENTINE while in the River Schelde, Holland about one mile west of Terneuzen was attacked by enemy aircraft. The direct hit dropped down the after funnel causing severe damage to the upper deck over No.2 boiler room, and completely wrecking the boiler room which flooded. The engine room and No.1 boiler room commenced to flood slowly due to strained bulkheads. The near miss dropped in the sea abreast the forward magazine on the starboard side causing a hole in the ship's side of 20 ft. diameter above and below the waterline. The fore and aft bulkheads of the magazine were destroyed and all structure in the vicinity was buckled causing flooding of the remaining compartments on the fore side of the magazine. The magazine did not explode but a cordite fire was started. The ship was immobilised, grounded and finally abandoned.
SOMALI 15th May, 1940 D.N.C.4B/R20	One Near Miss 1,000 lbs. (approx) delay action fuzed Bomb	14 weeks	SOMALI while operating off the Norwegian coast at Mo, was attacked by enemy aircraft. The bomb fell abreast 'A' mounting and exploded a few feet to starboard. The side plating fractured with heavy indentations in the vicinity of the hole and structural damage was caused to bulkheads and decks at the fore end. The fore foot was displaced. The fore end aft to 30 station and No.1 magazine and pom-pom magazine were flooded. Fighting Efficiency - Impaired. The ship could only steam at reduced speed but all guns could be fired, with a reduced ammunition supply to the forward groups. The aerials were blown down and the W/T was out of action. REMARKS This incident emphasised the need for increased anti aircraft protection aft. The ship steamed over 1,000 miles to port at 11½ knots in a calm sea.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITLEY 19th May, 1940	Size and type unknown Bomb	Beached	WHITLEY was seriously damaged by bombs and beached between Nieuport and Ostend. No further information is available.
MALCOLM 20th May, 1940	Number unknown Near Miss direct action fuzed Bombs	4 days	MALCOLM while operating off the West Hinder Light was attacked by enemy aircraft. 4 near misses fell abreast the bridge on the starboard side, the nearest being 20 yards away, 6 near misses fell from abreast 'X' gun to the stern, the nearest 5 yards away, while a third stick fell about 100 yards away on the starboard quarter. Minor structural damage on the starboard side from the engine room to the stern was caused by splinters, and minor fires were started. Fighting Efficiency - Slightly impaired. The W/T was put out of action by damaged aerials and the D.G. was cut by splinters.
VANSITTART 21st May, 1940	Size and type unknown Bomb	1 month	VANSITTART was attacked by enemy aircraft and sustained structural damage to the after superstructure decks and bulkheads. Fighting Efficiency - Impaired. All instruments and electrical circuits to 'X' and 'Y' guns were burnt.
KEITH 21st May, 1940	Number unknown Near Miss 500 lbs. (approx.) direct action fuzed Bombs and Machine gun attack	Nil	KEITH while lying alongside Felix Faure Quay, Dunkirk, embarking refugees was attacked by enemy aircraft. The bombs fell at an average distance of 20 yards from the ship causing minor damage only. The bridge and superstructure were holed by machine gun bullets and splinters. Fighting Efficiency - Not impaired.
FAME 22nd May, 1940	Eight Direct Hit 2 lbs. (approx.) delay action fuzed Shells	Nil	FAME sustained minor damage to hull, superstructure and machinery. Fighting Efficiency - Not impaired. The ship was ready to proceed in 1¼ hours.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WILD SWAN 22nd May, 1940	Near Miss size unknown direct action fuzed Bomb	1 week	WILD SWAN while on patrol off Boulogne was attacked by enemy aircraft sustaining minor structural damage by splinters above the waterline. Fighting Efficiency - Not impaired.
KEITH 23rd May, 1940	Near Miss 50 lbs. (approx.) direct action fuzed Bomb and Machine Gun	6 days	KEITH while lying alongside Quay Chanzy at Boulogne, evacuating troops was attacked by enemy aircraft. Minor structural damage was caused to the forecastle deck with the superstructure, bridges and upperworks generally riddled with machine gun bullets and splinters from near misses. Fighting Efficiency - Slightly impaired.
VIMY 23rd May, 1940	Near Miss Bomb. "Short" Shells, Machine gun and Rifle Fire	Nil	VIMY while evacuating troops from Boulogne Harbour was attacked by enemy aircraft and simultaneously by German troops with mortars, machine gun and rifle fire. One bomb exploded on the jetty within 3 yards of the ship and a fire was started on board. Fighting Efficiency - Slightly impaired. The ship left harbour to return to Dover because of the fire and the many stretcher cases on board.
VENETIA 23rd May, 1940 D.N.C.4B/R22	Seventeen Direct Hit probably 7.5 inch direct action fuzed Shells. Machine gun and Rifle fire etc.	7 weeks	VENETIA was in Boulogne Harbour in company with VENOMOUS to embark troops when they were engaged by shore batteries, field guns, tanks, machine guns and snipers. Minor structural damage was caused by the hits, which were all on the superstructure and funnels, but splinter damage was serious. Fighting Efficiency - Seriously impaired. The main steam pipe was cut and speed reduced by 50% while guns were fired by local control only. The W/T T/S and bridge steering were put out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VENOMOUS 23rd May, 1940	Near Miss size unknown delay action fuzed Bomb size and type unknown Shell	1 week	VENOMOUS was about to enter Boulogne harbour when attacked by enemy aircraft. She sustained a near miss 20 ft. off starboard quarter. The bomb caused minor structural damage and splinter holes in the stern with slight damage to the starboard shaft. The D/G coil was cut and the D/F and A/S put out of action. While in Boulogne harbour VENOMOUS was engaged by shore batteries, field guns, tanks, machine guns and snipers. The top of main mast received a glancing blow, and main aerials and rigging were shot away. The W/T was put out of action by machine gun bullets. Fighting Efficiency - Slightly impaired.
FAME 23rd May, 1940	One Near Miss 250-500 lbs. type unknown Bomb	Nil	FAME was attacked by enemy aircraft and sustained a near miss about 10-20 yds. away on the port quarter. The stern of the ship was lifted and minor damage was caused in the tiller flat. The port and starboard steering motors seized up but after tightening the holding down bolts the starboard one was restarted. Fighting Efficiency - Slightly impaired. Turning was slower and no second steering unit was available. REMARKS This incident emphasised the need for even and firm tightening of holding down bolts to auxiliary machinery.
FIREDRAKE 23rd May, 1940	One Near Miss size and type unknown Bomb	Nil	FIREDRAKE while at Narvik was attacked by enemy aircraft and sustained a near miss about 20 ft. from ship. Splinter holes were made above and below the waterline aft. Fighting Efficiency - Not impaired.
WHITSHED 23rd May, 1940	Size and type unknown Bomb	1 week	WHITSHED while operating off Boulogne was attacked by enemy aircraft. 'A' and 'B' gun roller paths were buckled and gun elevating gear and electric circuits were damaged. Fighting Efficiency - Seriously impaired.
WESSEX 24th May, 1940	Size and type unknown Bomb	Sunk	WESSEX while operating off Calais, was attacked by enemy aircraft and sunk. Details are not known.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VIMIERA 24th May, 1940	Number unknown Near Miss 110 lbs. (approx.) delay action fuzed Bombs	10 days	VIMIERA was attacked by enemy aircraft and near misses exploded beneath the ship, one pattern amidships and another towards the after end. Slight straining of the ship's structure took place and minor flooding occurred in the engine room from a fractured water pipe to the circulator. Fighting Efficiency - Impaired. The roller paths to the after 4 inch guns and port 5" machine guns were distorted and guns were difficult to train. Complete failure of electrical power occurred due to the fracturing of governor valve gear box to generators. REMARKS This incident emphasised the need for the design of a stronger governor box.
GREYHOUND 26th May, 1940	One Direct Hit 3" (approx.) H.E. delay action fuzed Shell	Nil	GREYHOUND was engaged by enemy shore batteries while shelling Calais. A shell struck the after starboard side of the H.A.D. which, at the time, was trained on the starboard bow, and minor structural damage was caused. Fighting Efficiency - Slightly impaired. The H.A.D. and A/S gear were both out of action through severed leads.
WOLFHOUND 27th May, 1940	Four Near Miss 250 lbs. delay action fuzed Bombs	10 days	WOLFHOUND while proceeding to Belgium to evacuate troops was attacked by enemy aircraft. A stick of four bombs fell off the port quarter about 20 ft. from the ship's side causing minor damage to auxiliary machinery but no structural damage. Although the cast iron feet to the port dynamo were cracked power was supplied continuously. Fighting Efficiency - Not impaired.
WHIRLWIND 27th May, 1940	Size and type unknown Bomb	Nil	WHIRLWIND was attacked by enemy aircraft and suffered minor damage resulting in a temporary reduction of speed. Fighting Efficiency - Not impaired.
WALKER 27th May, 1940	Size and type unknown Bomb	10 days	WALKER was attacked by enemy aircraft and suffered minor structural damage. The cast iron feet to the dynamos were fractured. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WINDSOR 28th May, 1940	Size and type unknown Bomb	Nil	WINDSOR while engaged in the evacuation of Dunkirk was attacked by enemy aircraft and suffered minor damage to the hull and aerials. Fighting Efficiency - Not impaired.
WAKEFUL 29th May, 1940	One Contact Torpedo fired from E Boat	Sunk	WAKEFUL while proceeding at 20 knots off Kwinte Whistle Buoy was attacked by an enemy E boat. One torpedo hit amidships just forward of the boiler room and the ship broke in half. The two portions floated for some time with their "midship" ends submerged. REMARKS This incident emphasised the need for the provision of escape hatches at the fore end of the ship.
GRAFTON 29th May, 1940	One Contact Torpedo fired from E boat. Cause of second explosion unknown	Sunk	GRAFTON while in the vicinity of Kwinte Whistle Buoy rescuing WAKEFUL survivors was attacked by an enemy E boat. A torpedo struck on the port quarter just ahead of the port propellor, causing severe structural damage aft, but the ship was undamaged forward of the after bulkhead of the after magazine with main machinery and lighting still in action. Immediately afterwards an explosion in the vicinity wrecked the whole of the fore part of the bridge while shortly afterwards the ship was rammed by LYDD on starboard side abreast No.7 oil fuel tank, causing minor structural damage. The cause of the second explosion is not known. The crew abandoned ship and GRAFTON was sunk by gunfire from IVANHOE. REMARKS This incident emphasised the fact that aluminium alloy scuttles appear to be too weak to withstand heavy shocks.
GRENADE 29th May, 1940	Size and type unknown Bomb	Sunk	GRENADE while in Dunkirk Harbour was attacked by enemy aircraft and was abandoned when on fire and in a sinking condition, after having been towed from the fairway. No further details are available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GREYHOUND 29th May, 1940	Two Near Miss size unknown direct action fuzed Bombs	3 weeks	GREYHOUND while at anchor off La Panne (Dunkirk) was attacked by enemy aircraft. The bombs dropped about 6 ft. from the starboard side, one abreast the 0.5 inch gun platform and the other abreast 'X' gun, causing minor auxiliary machinery damage and flooding, and splinter damage to starboard side of the hull and superstructure. Fighting Efficiency - Seriously impaired. The ship was eventually immobilised due to loss and contamination of feed water and the efficiency of the starboard 0.5 inch quadruple machine gun was reduced by 25%.
JAGUAR 29th May, 1940	Four Near Miss 250 lbs. (approx.) direct action fuzed Bombs and Machine gun	16 days	JAGUAR whilst evacuating troops from Dunkirk was attacked by enemy aircraft. The bombs fell about 10 yards off the port beam abreast the funnel causing minor damage to auxiliary machinery and flooding of oil fuel tanks. The port side suffered generally from splinters and the hull and superstructure were holed by machine gun bullets. Fighting Efficiency - Seriously impaired. The secondary lighting, W/T, 'X' mounting and the left guns of 'A' and 'B' mountings were out of action while the engine room and steering gear were temporarily out of action due to damaged steam pipes. REMARKS This incident emphasised the need for the modification of existing oil burning secondary lighting.
GALLANT 29th May, 1940	One Near Miss size unknown direct action fuzed Bomb	1 week	GALLANT while engaged in the evacuation of Dunkirk was attacked by enemy aircraft. A near miss bomb exploded about 10 yards from the stern. Minor structural damage occurred from splinters and minor electrical damage was caused. The tiller flat was flooded and the primary steering inoperative. Fighting Efficiency - Impaired. Speed and angle of helm were reduced.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INTREPID 29th May, 1940	Near Miss size unknown direct action fuzed Bomb	2 weeks	INTREPID while engaged in the evacuation of Dunkirk was engaged by enemy aircraft. A near miss on the port side abreast 'B' gun caused minor splinter damage to the structure, auxiliary machinery and electrical equipment, the main steam pipe in No.1 boiler room being pierced. The forward magazine group was flooded and five fires were started, but they were soon under control. Fighting Efficiency - Impaired. All firing controls, gunnery and torpedo control circuits and the D.G. were out of action. 'B' gun was partially out of action due to hit on mantlet plate and the forward armament supply was curtailed by flooding. Speed was reduced owing to No.1 boiler room being out of action.
SALADIN 29th May, 1940	Size and type unknown Bombs	11 days	SALADIN while approaching Dunkirk was bombed 10 times. Minor structural damage was caused by splinters and some ready-use cordite aft which was set on fire, was jettisoned. Fighting Efficiency - Impaired.
ANTHONY 30th May, 1940	Size and type unknown Bomb	2 weeks	ANTHONY while engaged in the evacuation of Dunkirk was attacked by enemy aircraft. Minor damage was caused to the aerials and depth charges and the turbine feet of the main engines were cracked. Serious vibration of machinery occurred when steaming at more than 14 knots. Fighting Efficiency - Seriously impaired. The ship was towed to port.
BEAGLE 30th May, 1940	One Near Miss 250 lbs. (approx.) type unknown Bomb	Nil	BEAGLE while engaged in the evacuation of Dunkirk was attacked by enemy aircraft. A near miss struck the water about 12 yards from the starboard side abreast 'A' gun. Fighting Efficiency - Slightly impaired. The balance weight to 'A' gun was sheared.
SABRE 30th May, 1940	Size and type unknown Bomb	Nil (See ¤ Page 136)	SABRE while engaged in the evacuation from Dunkirk was attacked by enemy aircraft and suffered minor damage, mainly from fire. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VIVACIOUS 31st May, 1940	Direct Hit Calibre and type unknown Shell	Nil (See * Page 136)	VIVACIOUS while evacuating troops from Dunkirk was hit by a shell fired from German army units advancing towards the coast. Details of damage are not available. Fighting Efficiency - Not impaired.
EXPRESS 31st May, 1940	Size and type unknown Bomb	1 week	EXPRESS while engaged in the evacuation from Dunkirk was attacked by enemy aircraft. Superficial damage was caused by splinters. Fighting Efficiency - Not impaired.
BASILISK 1st June, 1940	Direct Hit and Near Miss size unknown delay action fuzed Bomb	Sunk	BASILISK while embarking troops off La Panne was attacked by enemy aircraft. A direct hit on the port side of the after end of No.3 boiler room fractured the bulkhead between the boiler room and engine room, and cut main and auxiliary steam lines, thus putting all the machinery out of action. A second attack of near miss bombs burst in the water underneath the ship causing the ship's sides and deck to buckle in a position between the after end of the after torpedo tubes and the after superstructure. A third attack took place and the ship was straddled by hits and near misses. In about 3 minutes the ship sank, settling on the bottom on an even keel in about 4 fathoms. She was then abandoned and finally destroyed by WHITEHALL.
HAVANT 1st June, 1940	Direct Hit size and type unknown Bombs	Sunk	HAVANT while off Dunkirk received several direct hits when attacked by enemy aircraft. No further information is available.
KEITH 1st June, 1940	Direct Hit and Near Miss size unknown delay action fuzed Bombs	Sunk	KEITH while off Bray at No.8 Buoy was attacked by enemy aircraft. In the first attack two hits in the vicinity of the machinery spaces caused severe structural damage and flooding in the engine and after boiler room while near misses on the port caused the ship to list heavily to port. The ship was immobilised and was lying with one anchor down when the second attack took place. The stern rose sharply and the ship capsized to port. REMARKS This incident emphasised the need for the protection of exposed personnel on anti-aircraft guns and modification to the stowage of carley floats in a vertical position.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WORCESTER 1st June, 1940	Near Miss size and type unknown Bomb	6 weeks including collision repairs	WORCESTER while engaged in the evacuation from Dunkirk was attacked by enemy aircraft and sustained minor damage from splinters. A collision later caused damage to the stern and the propellers. Fighting Efficiency - Impaired.
VIVACIOUS 1st June, 1940	Size and type unknown Bomb	1 week *	VIVACIOUS while engaged in the evacuation from Dunkirk was attacked by enemy aircraft and sustained minor damage. Fighting Efficiency - Not impaired.
IVANHOE 1st June, 1940 D.N.C.4B/R25	One Direct Hit two Near Miss 220 lbs. direct action fuzed Bombs	7 weeks	IVANHOE was in the entrance to Dunkirk Harbour when attacked by enemy aircraft. The direct hit occurred just abaft the forward funnel above the upper deck causing structural damage to the deck and bridge structure in the vicinity. Splinters from near misses damaged the ship's side causing slow flooding of Nos.1 and 2 boiler rooms. Fighting Efficiency - Seriously impaired. Nos.1 and 2 boiler rooms, W/T and the .5 inch machine guns were put out of action.
SABRE 2nd June, 1940	Size and type unknown Bomb	1 week *	SABRE while engaged in the evacuation of Dunkirk was attacked by enemy aircraft and sustained minor damage. Fighting Efficiency - Not impaired.
ESK 3rd June, 1940	Size and type unknown Bomb	8 days	ESK while engaged in the evacuation of Dunkirk was attacked by enemy aircraft and sustained minor damage from splinters in way of the oil fuel tanks. Fighting Efficiency - Slightly impaired.
ACASTA 8th June, 1940	Direct Hits Possibly 11 inch but probably smaller Shells	Sunk	ACASTA while screening GLORIOUS from the attacks of SCHARNHORST and GNEISNAU, when returning from Norway was hit by shellfire. One shell passed through the forward mess deck and exploded, causing structural damage to the hull and pom-pom magazine. The ship was later immobilised by a direct hit in the engine room and listed first to port, then to starboard, finally sinking by the stern.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARDENT 8th June, 1940	Direct Hit possibly 11 inch but probably smaller Shells	Sunk	ARDENT while screening GLORIOUS from the attacks of SCHARNHORST and GNEISNAU, when returning from Norway was hit by shellfire and finally sunk.
BOADICEA 10th June, 1940 D.N.C.4B/R26	Three Direct Hit Two 250 lbs. One size unknown delay action fuzed Bombs	7½ months	BOADICEA while operating with AMBUSCADE and BULLDOG off the French coast was attacked by enemy aircraft. 1st Hit perforated the upper deck on the starboard side and entered the engine room where it burst just above the outer bottom causing structural damage and perforation of the outer bottom. 2nd Hit perforated the ship's side starboard at the upper deck edge and entered the engine room causing severe structural damage when it burst just above the outer bottom. 3rd Hit passed out through the ship's bottom in the after engine room without exploding. The effect of these hits caused the immediate flooding of No.2 boiler room and the engine room and wrecked the main machinery. Fighting Efficiency - Seriously impaired. The steering gear was out of action and the ship was immobilised due to flooded and wrecked machinery spaces. The main armament could only be fired under local control.
BULLDOG 10th June, 1940 D.N.C.4B/R26	Three Direct Hit 110 lbs. delay action fuzed Bombs	5 weeks	BULLDOG while operating with AMBUSCADE and BOADICEA off the French coast was attacked by enemy aircraft. Hit No.1 penetrated the fore part of the engine room severing the main exhaust steam pipe, and passed out through the ship's side without exploding. The engine room was not habitable for more than 20 minutes due to escaping steam, thus resulting in a loss of speed. Hit No.2 penetrated the upper deck and came to rest inside No.3 boiler without exploding. Hit No.3 pierced the fore side of the after funnel and passed into No.3 boiler where it exploded 10 minutes later wrecking No.3 boiler room. Fighting Efficiency - Seriously impaired. Speed was reduced, the main W.T. was temporarily out of action and the armament was under local control only.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AMBUSCADE 10th June, 1940	Direct Hit possibly 37 mm. Shell	3 days	AMBUSCADE while in company with BOADICEA and BULLDOG off the French coast was hit by enemy shellfire and sustained minor damage to the hull and superstructure and splinter damage from shorts. Fighting Efficiency - Not impaired.
FIREDRAKE 12th June, 1940	Near Miss size and type unknown Bomb	1 week	FIREDRAKE was attacked by enemy aircraft and a near miss bomb fell about 20 ft. from the ship's side causing minor damage from splinters above and below the waterline just aft and forward of amidships. The port steering motor was put out of action. Fighting Efficiency - Not impaired.
FAME 12th June, 1940	Size and type unknown Bomb	1 week	FAME when attacked by enemy aircraft sustained minor splinter damage to the hull and superstructure. Fighting Efficiency - Impaired. 'A' gun was out of action.
BEAGLE 12th June, 1940	Size and type unknown Bomb	4 days	BEAGLE was attacked by enemy aircraft and received minor structural damage. Fighting Efficiency - Slightly impaired. 'A' gun was out of action.
WALKER 12th June, 1940	Near Miss size and type unknown Bombs	12 days	WALKER when attacked by enemy aircraft sustained minor damage to auxiliary machinery from near misses. A leak occurred in No.3 oil fuel tank and excessive vibration took place in the port shaft. Fighting Efficiency - Impaired.
DIAMOND 17th June, 1940	Size and type unknown Bomb	Nil	DIAMOND was attacked by enemy aircraft and sustained minor damage from splinters. Fighting Efficiency - Not impaired.
JERVIS 3rd July, 1940	Size and type unknown Bomb	Nil	JERVIS was attacked by enemy aircraft off Malta. No further details are available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHIRLWIND 5th July, 1940	One probably Contact Torpedo fired from submarine	Sunk	WHIRLWIND when 200 miles west of Scillies forming part of a convoy escort was attacked by an enemy submarine. The explosion occurred just forward of the bridge and structure forward of this disappeared and Nos.3 and 4 oil fuel tanks flooded immediately. Severe structural damage to the deck and hull plating in way of the after bulkhead of the engine room occurred. Slow flooding of the engine room and No.1 boiler room also occurred. The ship was abandoned and was finally sunk about 5½ hours afterwards by torpedo and shell fire from WESTCOTT.
FAME 6th July, 1940	One Near Miss 200 lbs. (approx.) direct action fuzed Bomb	3 months	FAME while searching for H.M.S. SHARK 28 miles west of Scotstoun Head was attacked by enemy aircraft. A near miss bomb exploded on the water about 5 ft. from the port side abreast 'Y' gun blowing a large hole in the ship's side and causing severe structural damage to the hull plating in the vicinity. Immediate flooding of the after magazine, shell room and ward room occurred with slow flooding in the tiller flat. Serious splinter damage was caused from the tiller flat aft to the bridge. Cordite fires which started on the port side aft, were quickly extinguished. Fighting Efficiency - Seriously impaired. 'Y' gun was put out of action by splinter damage and 'X' gun was immobilised due to injuries of the crew, while both 'X' and 'Y' magazine group were flooded. Splinters cut the D.G. coil and telemotor leads to after steering position.
ESCORT 11th July, 1940	One Contact Torpedo fired from submarine	Sunk	ESCORT while forming an asdic screen, with FORESTER and WRESTLER in company, was struck by a torpedo on the starboard side between Nos.1 and 2 boiler rooms. The explosion caused a large hole in the upper deck over Nos. 1 and 2 boiler rooms, and a hole in the side plating about 20 ft. long extending from 4 ft. below the upper deck to below the bilge keel. Nos.1 and 2 boiler rooms were shattered and flooded immediately while slow flooding of No.3 boiler room commenced through the badly damaged after bulkhead of No.2 boiler room. The forward bulkhead to No.1 boiler room was destroyed and all compartments forward of this to No.41 bulkhead flooded immediately. About 4 hours later the ship developed a 30° list to port and was abandoned 2 hours after this. Some 8½ hours after being struck the ship turned over on her beam and broke her back between Nos.1 and 2 boiler rooms finally sinking ½ hour later.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VANESSA 14th July, 1940 D.N.C.4B/R48	Near Miss 250 lbs. and 50 lbs. mixed delay action fuzed Bombs	4 months	VANESSA while escorting a convoy 3 miles off Dover was attacked by enemy aircraft. 5 or 6 near miss bombs were dropped abreast 'B' gun, 30 ft. to port amidships and 20 ft. off the port quarter causing minor damage to hull structure and straining the ship generally. The main and auxiliary machinery suffered damage from cracked castings and the A.S. office, No.3 store and the forward magazine group were flooded with oil fuel and water. All electrical power was lost through damage to the dynamos and all the secondary lighting was damaged. Fighting Efficiency - Severely impaired. Ship was immobilised due to the damage to the main and auxiliary machinery, and the boiler room was inoperative through leakage of steam. The vessel was taken in tow to port.
HAVOCK 19th July, 1940 D.N.C.4B/R161	One Near Miss estimated 250 lbs. type unknown Bomb	8 weeks	HAVOCK while proceeding at full speed 3 miles south of Gavdi (Mediterranean) was attacked by enemy aircraft. The bomb fell about 4 ft. from the port side abreast No.2 boiler room causing damage to the hull structure and flooding in the boiler room due to strained rivets. Minor damage to the boiler feet and auxiliary machinery occurred. Fighting Efficiency - Slightly impaired.
GRIFFIN 19th July, 1940	One Near Miss 250 lbs. approx. delay action fuzed Bomb	2 weeks	GRIFFIN while moored to a Buoy was attacked by enemy aircraft. A near miss fell on the starboard side forward abreast the central store causing structural damage to the hull and bulkheads from stem to 33 station, port and starboard, and slow flooding of central store and petrol compartment. Fighting Efficiency - Severely impaired. Speed was reduced to 20 knots and the seagoing efficiency was impaired.
BEAGLE 19th July, 1940	Near Miss 250 lbs. and 50 lbs. delay action fuzed Bombs	Nil (See Page 141)	BEAGLE was attacked by enemy aircraft 2 miles from Admiralty pier Dover. One bomb dropped 30 ft. to starboard abreast the bridge causing minor structural damage in the vicinity of 61 station and fracturing the cast iron fittings to three boiler room fans on the starboard side. Fighting Efficiency - Severely impaired. No.1 boiler room was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BEAGLE 20th July, 1940	Near Miss 250 lbs. and 50 lbs. delay and direct action fuzed Bomb	3 weeks	BEAGLE while on passage from Dover to Devonport was attacked by enemy aircraft. Near Misses occurred 10-200 yds. from the ship causing straining to 61 frame and leaking in No.1 boiler room. The port steering unit was also damaged. Fighting Efficiency - Slightly impaired. Electric leads to 'B' gun were cut.
BRAZEN 20th July, 1940	Six Near Miss size unknown delay action fuzed Bombs	Sunk	BRAZEN while escorting a Channel convoy off Dover was attacked by enemy aircraft. A salvo of 2 large and 4 smaller bombs dropped close to the port beam, one bursting underneath the keel in the wake of the engine room, another close alongside on the water surface to starboard and the remainder at unknown positions. Severe structural damage was caused to the hull structure abreast and over the engine room and No.2 boiler room, the keel being split over this area. Major damage was also caused by splinters which pierced the shell plating abreast the engine room and No.2 boiler room, and also the forward bulkhead to this compartment. The engine room and No.2 boiler room were flooded immediately and No.1 boiler room flooded rapidly. An oil fuel fire started in No.2 boiler room. Steering gear and all lighting were immediately put out of action and the W/T was immobilised through damage to the aerials. The ship was immobilised and, while being taken in tow by BOREAS, broke her back, two hours after the bombs had dropped. The after end sank immediately and the fore end was eventually sunk by gunfire.
BOREAS 25th July, 1940 D.N.C.4B/R37	Near Miss size unknown delay action fuzed two Direct Hit 110 lbs. delay action fuzed Bombs	6 months	BOREAS left Dover to engage enemy 'E' boats and when about 3 miles off the port was attacked by enemy aircraft. In the first attack near misses fell to port and starboard abreast the after engine room, the nearest being 10 ft. away. The ship was temporarily immobilised through the disabling of boiler room fans and dynamos, and slow flooding in the engine room through a cracked circulator inlet, but 10 minutes later, after temporary repairs, the ship proceeded under hand steering at 17 knots. The first salvo of the second attack fell 20-30 ft. ahead of ship and the third salvo fell 20-30 ft. abaft the after end. In the second salvo, however, two direct hits were scored on the bridge, one of which passed out of the superstructure port without exploding. Severe structural damage was caused to the bridge and forward superstructure and minor structural damage to the bulkheads at the fore and after ends from the near misses. Minor flooding occurred in the torpedo head room, engine room and central store. Fighting Efficiency - Severely impaired. The ship was immobilised due to the failure of boiler room fans and dynamos, and the W/T was out of action. She was finally taken in tow.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRILLIANT 25th July, 1940 D.N.C.4B/R29	Two Direct Hit several Near Miss 250 lbs. and 50 lbs. mixed delay action fuzed Bombs	7 weeks	BRILLIANT left Dover to engage enemy 'E' boats and was attacked by aircraft shortly after this engagement. Several near misses were sustained and two direct hits, one of which passed through the wardroom and shellroom, the other through the steward's mess and tiller flat. Both these passed out through the side plating without exploding. Immediate flooding of the tiller flat took place and of the after magazine group where the flooding extinguished a minor fire which had been started. Castings of main and auxiliary machinery sustained damage. Fighting Efficiency - Severely impaired. 'Y' gun was out of action, and the ship was taken in tow due to the steering gear being out of action. REMARKS This incident emphasised the necessity for modification to the design of the fan engine platform.
MONTROSE 27th July, 1940 D.N.C.4B/R35	Near Miss 500 lbs. delay action fuzed Bombs	9 months	MONTROSE while acting as destroyer and A.A. escort to M.S. trawlers was attacked by enemy aircraft. Three attacks were made, the first attack causing no damage to the ship. In the second attack the bombs fell about 10 yards to port abreast the after superstructure shaking the ship considerably and causing minor damage aft. In the third attack the bombs dropped close to the starboard side abreast the after tubes putting the steering gear and the starboard engine unit out of action and causing cracks in the castings to turbine feet and auxiliary machinery. Minor structural damage occurred to decks and bulkheads in way of the gland compartment and engine room, and corrugation of the outer bottom plating took place below the W.L. Fighting Efficiency - Seriously impaired. The W/T and steering gear was out of action and all electrical power was lost. The engine room was abandoned because of escaping steam and the ship was immobilised and had to be towed to port.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WREN 27th July, 1940	Two Direct Hit (or very near miss) size unknown (probably as MONTROSE) delay action fuzed Bombs	Sunk	WREN while in company with MONTROSE acting as A.A. escort to M.S. trawlers was attacked by enemy aircraft. One or two bombs (either direct hits or very near misses) fell on the starboard side abreast the ward room, causing severe damage to all bulkheads in the vicinity and the structure abaft the engine room. There were many other near misses and the ship broke her back. The after end sank in 3 minutes and the fore end sank 15 minutes later.
WALPOLE 27th July, 1940	Two Near Miss size unknown delay action fuzed Bombs	7 weeks	WALPOLE while at No.7 Buoy in Dover Harbour was attacked by enemy aircraft. The first bomb struck the water about 30 ft. to port abreast the after steering position and the second bomb about 30 ft. directly astern. Minor buckling to No.97 bulkhead occurred and one peace tank was strained. The cast iron feet to port L.P. and H.P. turbines and castings to various auxiliary machinery units were fractured and a temporary loss of electrical power was sustained. Fighting Efficiency - Seriously impaired. The speed was reduced to 10 knots.
CODRINGTON 27th July, 1940	One Direct Hit size and type unknown Bomb	Grounded	CODRINGTON while lying alongside SANDHURST in Dover Harbour was attacked by enemy aircraft. A bomb hit the after end resulting in her back being broken and the subsequent grounding of the after end from No.3 gun to the stern. No further details are available.
DELIGHT 29th July, 1940	Direct Hit and Near Miss size unknown direct action fuzed Bomb	Sunk	DELIGHT was 20 miles S.S.W. of Portland Bill when attacked by enemy aircraft. The first salvo of three bombs fell close to the ship with no appreciable effect but one bomb of the second salvo hit the ship a glancing blow on the port side at the break of forecastle. This bomb caused structural damage to the ship's side and also considerable splinter damage. A serious fire started in the low power room and this was helped by the escape of oil fuel from damaged tanks. The main steam pipe was fractured, and all lighting failed, while the forward magazine group was probably flooded. About $2\frac{3}{4}$ hours after the commencement of the action a big explosion occurred forward and the ship sank shortly afterwards.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITSHED 31st July, 1940 D.N.C.4B/R44	One Contact Mine 14 fathoms	19 weeks	WHITSHED struck a mine in the vicinity of the asdic dome while on night patrol off Harwich. Severe structural damage occurred forward of 39 bulkhead, the fore end collapsed and the stem dropped about 6½ ft. Aft of 39 bulkhead the ship remained watertight with only minor structural damage just aft of the main engine room. Immediate flooding occurred on the lower deck and all compartments below from 39 bulkhead to the stem. Fighting Efficiency - Seriously impaired. The A.S. was destroyed and gyro-compass and D.G. damaged. All oil fuel supply from forward was lost and the ship could only steam at 8 knots astern.
WINDSOR 11th Aug., 1940 D.N.C.4B/R30	One Direct Hit 250 lbs. delay action fuzed several Near Miss 25 lbs. direct action fuzed Bombs	9 weeks	WINDSOR while escorting minesweepers was attacked by enemy aircraft in a position 4 cables eastward of Botany Buoy. Two attacks took place and several near misses were sustained varying from 2 ft. to 100 ft. from the ship abreast the machinery spaces. A direct hit near the edge of the upper deck, level with the after end of the after superstructure, pentrated through the deck and down through the shell room, finally passing out through the ship's side about 3 ft. below the waterline exploding clear of the ship. Minor structural damage occurred in the path of the bomb and immediate flooding of the after shell room, magazine and wardroom took place. The near misses caused minor damage to the structure abreast the machinery spaces and the sliding feet to the turbines were fractured. The auxiliary machinery suffered minor damage due to fracture of castings and port dynamo was put out of action. Lighting was maintained by the starboard dynamo. Fighting Efficiency - Seriously impaired. The ship maintained a speed of 20 knots throughout the action.
SCIMITAR 11th Aug., 1940	Ten-Fifteen Near Miss direct action fuzed Bombs	4 days	SCIMITAR was at anchor in Portland Harbour when attacked by enemy aircraft. the nearest bomb dropped 20 yards away causing splinter holes in the hull and superstructure and minor fires which were started were soon extinguished. Fighting Efficiency - Slightly impaired. Electric leads suffered minor damage and the D.G. cable was cut.
SKATE 11th Aug., 1940	Size and type unknown Bomb	Nil Repaired as and when ship was available	SKATE was damaged during an air attack on Portland and suffered minor damage to the bridge structure. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ESK 11th Aug., 1940	Four Near Miss size and type unknown Bombs	1 week (including maintenance repairs)	ESK received damage to the rudder plating when four medium sized bombs fell astern of her during an air attack. Fighting Efficiency - Not impaired.
WATCHMAN 12th Aug., 1940	Size and type unknown Bomb	1 month including refit	WATCHMAN was attacked by enemy aircraft and suffered minor damage from near misses, the 'A' brackets being loosened. Fighting Efficiency - Impaired.
HOSTILE 23rd Aug., 1940 D.N.C.4B/R56	Type unknown Mine 100 fathoms. Torpedo from own forces	Sunk	HOSTILE while in the Mediterranean near Cape Bon Light (Tunis) sustained an explosion beneath the ship just abaft the engine room, her speed at the time being 30 knots. Major structural damage occurred, a hole being blown in the side plating port, abreast the Engineer's Store with a large portion of the plating folded outwards extending approximately 15 ft. aft. The after torpedo tubes were blown overboard with the upper deck bulged up in the vicinity and split in one place. The after bulkhead of the engine room was destroyed and immediate flooding of the engine room and the after oil fuel tanks took place. Further flooding took place aft and the vessel broke her back. The ship was finally sunk by a torpedo from HERO.
ACHERON 24th Aug., 1940 D.N.C.4B/R157	One Direct Hit three Near Miss size unknown delay action fuzed Bombs	13 weeks	ACHERON while lying alongside the North West Wall in Portsmouth Dockyard was hit during an enemy air attack. The direct hit occurred on the upper deck above the propellers to starboard of the middle line and it exploded just below the upper deck wrecking all structure aft of the after bulkhead of the wardroom. The shafts, propellers and rudder were undamaged. Immediate flooding of the after end occurred. The three near misses were in the vicinity of the stern. Fighting Efficiency - Seriously impaired. The steering engine and auxiliaries were destroyed and the D.G. cable severed. 'Y' gun was out of action and the H.P. and L.P. circuits aft of 'X' gun were destroyed.
BULLDOG 24th Aug., 1940	Size unknown delay action fuzed Bomb	9 days	BULLDOG while lying outside of ACHERON in Portsmouth Dockyard during an air attack, sustained minor damage from splinters. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BEAGLE August, 1940	Size and type unknown Bomb	6 days	BEAGLE when attacked by enemy aircraft off Portland Bill, sustained minor damage. Fighting Efficiency - Not impaired.
EXPRESS 31st Aug., 1940 D.N.C.4B/R31	One Moored Contact Mine	13 months	EXPRESS was proceeding towards the Dutch coast in company with ESK and IVANHOE when an explosion occurred abreast 'B' gun. The fore end of the ship, back to Nos. 1 and 2 oil fuel tanks completely disappeared, together with side plating, port and starboard, back to approximately the fore end of the bridge structure. Immediate flooding took place in these areas, but aft of the forward bulkhead of No.1 boiler room the ship was watertight. Fires, which started in the wheelhouse and sick bay, and which were aggravated by oil fuel which had been sprayed over the fore end by the explosion were quickly got under control. The ship was temporarily immobilised, but main engines, and electrical power remained in action. Fighting Efficiency - Seriously impaired. The forward armament group was destroyed and W/T, T.S. and D.G. were all out of action. The ship was finally taken in tow, stern first. REMARKS This incident emphasised the need for more sawdust and sand to be carried and distributed throughout the ship.
ESK 31st Aug., 1940 D.N.C.4B/R31	Two Moored Contact Mines	Sunk	ESK when proceeding to the aid of EXPRESS suffered an explosion forward. About 15 minutes later a larger explosion occurred amidships. The vessel then appeared to break in two, and sank immediately.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IVANHOE 31st Aug., 1940 1st Sept., 1940 D.N.C.4B/R31	Two moored contact mines, and torpedo from own forces	Sunk	IVANHOE while proceeding with ESK and EXPRESS towards the Dutch coast, suffered an explosion off the port quarter. This explosion damaged the keel and hull plating just forward of the after superstructure, the shafts were distorted and the oil fuel tanks aft were open to the sea. Another explosion occurred under the bow, when IVANHOE went to the aid of EXPRESS. Bottom plating, mainly on the starboard side, was holed between 9 and 27 bulkheads, and a fire started in the petrol compartment, which necessitated the flooding of the forward magazine group. Flooding from sea occurred forward of 40 bulkhead, between 134 and 148 bulkheads, below the lower deck, and in the engine room. Steam could not be raised due to the contamination of oil fuel. About 2¼ hours after the second explosion steam was again raised and the vessel steamed astern at 7 knots. Two hours later the shafts fractured, and after 6 hours the ship began to settled down. The engine room started to flood 6 hours later, and the ship was finally abandoned. 30 minutes after being abandoned, IVANHOE was bombed by enemy aircraft and listed heavily to port, with her back broken, and down 8 ft. by the stern. She was finally torpedoed by KELVIN and sunk.
ATHERSTONE 11th Sept.,1940 D.N.C.4B/R32	One Direct Hit 250 kgm direct action fuzed. Two Direct Hit 50 kgm delay action fuzed Bombs	4 months	ATHERSTONE while escorting a convoy off Ramsgate was attacked by enemy aircraft, and three direct hits were sutained. Hit No.1 struck the port side of the signal deck and the bomb passed out through the ship's side, exploding in the sea. Hit No.2 occurred on the starboard side of the signal deck. It pierced the superstructure, passed into No.1 boiler room, and exploded near the ship's side starboard. The starboard side of the boiler room was wrecked, and a hole was blown in the side plating. Serious splinter damaged was caused. Hit No.3 occurred on the upper deck above No.1 boiler room near the port side. The upper deck and side were blown away in the vicinity of the burst, the port side of No.1 boiler room was wrecked, and severe splinter damage occurred. Hits 2 and 3 flooded Nos. 1 and 2 boiler rooms immediately. Fighting Efficiency - Seriously impaired. The vessel was immobilised, with Nos. 1 and 2 boiler rooms out of action. The after 4 inch guns could be fired in local control only. She was towed to port.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOLDERNESS 16th Sept.,1940	One Non-contact Acoustic Mine 9 fathoms	6 days	HOLDERNESS was proceeding in the North Sea at 20 knots, when an explosion occurred ten yards off the port quarter. The sliding feet of the port and starboard H.P. turbines were damaged, and some castings of auxiliary machinery were fractured. Only minor structural damage was sustained aft. Fighting Efficiency - Slightly impaired. The vessel was able to steam, and could have remained in action.
INGLEFIELD 23rd Sept.,1940 D.N.C.4B/R118	One Direct Hit 7.5 inch direct action fuzed Shell (French shore batteries)	Nil	INGLEFIELD while in action off Dakar was struck by a shell fired from a French shore battery. The shell struck the side plating about 5 ft. below the upper deck at 156 station, causing damage to cabin bulkheads, and minor splinter damage. Minor flooding occurred in way of the explosion. Fighting Efficiency - Slightly impaired. The after ammunition supply was temporarily reduced. REMARKS This incident emphasised the need for destroyers to be allowed at least two high candlepower watertight lamps (divers), and for electric leads from steering motor starters in the engine room to the motors to be run low down in the ship, e.g. through shaft tunnels.
FORESIGHT 23rd Sept.,1940	Two Direct Hit calibre unknown delay action fuzed Shells	Nil	FORESIGHT sustained two direct hits, one through the forward superstructure and another through the ship's side into the main W/T office. Minor damage occurred in way of the explosion of second shell, and the W/T office was damaged. Fighting Efficiency - Slightly impaired. The W/T was out of action.
VETERAN 26th Sept.,1940	One Non-Contact Acoustic Mine	8 days	VETERAN was proceeding at 22 knots off Barrow Deep L.V. when an explosion occurred on the starboard beam abreast 'X' gun. No structural damage occurred but minor damage was caused to auxiliary machinery. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HAMBLEDON 7th Oct., 1940 D.N.C.4B/R39	One Non-Contact Acoustic Mine 15 fathoms	7 months	HAMBLEDON while operating off Dover sustained an explosion slightly to starboard of the middle line in the vicinity of the 'A' brackets. The hull plating and internal structure abaft the cut up was severely damaged and the port and starboard 'A' brackets were fractured. The after end immediately flooded below the lower deck. The steering gear, auxiliary machinery and electrical fittings at the after end were badly damaged and vessel could not be steered. Fighting Efficiency - Severely impaired. The vessel was immobilised due to the fracture of the 'A' brackets and distortion of the main shaft. The after 4 inch mounting was out of action and the magazine group flooded. In severe weather the vessel would have been unseaworthy.
JERSEY 11th Oct., 1940 D.N.C.4B/R43	One Non-Contact Acoustic Mine 8 fathoms	15 days	JERSEY having sailed from Sheerness was about 400 yards from the East Knob Buoy when an explosion occurred about 35 yards on the port side abreast the fore end of the bridge. Minor flooding and structural damage occurred at the fore end and minor damage was caused to auxiliary machinery and lighting. Fighting Efficiency - Slightly impaired. The gyro compass and fire control instruments were out of action.
ZULU 11th Oct., 1940	One Non-Contact Acoustic Mine 19 fathoms	13 weeks	ZULU was proceeding off the Beamer Rock in the Firth of Forth when an explosion occurred about 50 ft. to starboard abreast 'Y' gun. Minor structural damage and minor leaks in oil fuel tanks occurred and some auxiliary machinery castings were fractured. Fighting Efficiency - Slightly impaired. Reduction of speed due to damaged machinery and rate of fire of after guns reduced.
IMPERIAL 11th Oct., 1940	One Contact Moored Mine 150 fathoms	25 weeks	IMPERIAL was proceeding 15 miles south of Delimara at 27 knots when an explosion occurred under the stern. Severe structural damage occurred abaft the after cut-up, the rudder was destroyed, port 'A' bracket fractured and the after end flooded immediately. Fighting Efficiency - Seriously impaired. Ship was able to steam at 10 knots, but due to damaged steering she was taken in tow. The after magazines were flooded and out of action.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COSSACK 14th Oct., 1940	One Direct Hit calibre and type unknown Shell	12 days	COSSACK while on operations sustained a direct hit on side plating starboard, beneath the waterline in way of the after steering flat causing minor structural damage and flooding. Fighting Efficiency - Slightly impaired.
VENETIA 19th Oct., 1940	One Contact Mine	Sunk	VENETIA while operating 3 cables from the East Knob Buoy struck a mine. The explosion occurred under the vessel in way of the engine room and caused the vessel to break in two, the two halves floating for a short while before sinking.
KIMBERLEY 21st Oct., 1940	One Direct Hit 5 inch - 7 inch direct action fuzed Shell fired from shore battery	10 days	KIMBERLEY after sinking an Italian destroyer engaged the shore batteries off Harmel and sustained a direct hit on the port side of the engine room. A hole was made in the side plating just above the waterline and minor structural damage occurred in the vicinity of the explosion. Splinters caused severe damage to pipe lines and electrical circuits in the engine room and the port main steam pipe was pierced. Fighting Efficiency - Seriously impaired. Vessel was temporarily immobilised but the starboard engine was restarted and the vessel steamed for 35 minutes at 15 knots with the engine room evacuated, finally having to stop due to loss of feed water. REMARKS This incident emphasised the need for fire and bilge pumps to have alternative supply of steam so that should one pipeline be isolated a cross connection can be made.
HOTSPUR 21st Oct., 1940	Rammed Submarine	4 months	HOTSPUR while operating in the Mediterranean, rammed an Italian submarine. The fore end structure below the lower deck was crushed for 36 ft. and flooding took place over 48 ft. with minor flooding above the lower deck. The rudder was also damaged and the asdic gear wrecked. Fighting Efficiency - Seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WALPOLE 28th Oct., 1940 D.N.C.4B/R54	One Non-Contact Acoustic Mine 10 fathoms	22 weeks	WALPOLE was proceeding to Sheerness at 12 knots when an explosion occurred about 15 ft. to starboard abreast the after oil fuel tanks. Minor damage was caused to the side, bulkhead and deck plating and a minor oil fuel leak occurred in the engine room. The cast iron feet of the main engines were fractured and extensive damage was caused to the auxiliary machinery. Minor flooding took place in the after magazine. Fighting Efficiency. The vessel was immobilised, with all electrical power lost. 'X' and 'Y' mountings were out of action and the torpedo tubes were displaced.
ANTELOPE 2nd Nov., 1940	Rammed Submarine	3 weeks	ANTELOPE while operating in the Western Approaches, rammed an Italian submarine. The side plating abreast the forward oil fuel tanks was buckled and leaking and a small split occurred in the plating below the waterline abreast the machinery spaces. Fighting Efficiency - Slightly impaired. Endurance was reduced, due to contaminated oil fuel.
INTREPID 2nd Nov., 1940	One Non-Contact type unknown (probably acoustic) Mine	7 weeks (including refit)	INTREPID suffered an explosion off the starboard quarter causing minor structural damage and putting the main engines temporarily out of action. Fighting Efficiency - Impaired. The vessel was temporarily immobilised.
WINCHESTER 8th Nov., 1940 D.N.C.4B/R55	One Non-Contact Acoustic Mine 10 fathoms. Four Near Miss 500 lbs. direct action fuzed Bombs	7 months	WINCHESTER was escorting a convoy 1 mile N.E. of Swin L.V. at 22 knots, when an explosion occurred 25 yards to starboard, abreast after end of engine room. About twenty minutes after the mine explosion four bombs fell within 50 yards of the ship, shaking her severely, and adding to the damage caused by the mine. The mine explosion put the main machinery out of action, and extinguished the main lighting. The side plating, starboard, was dished from 110 to 149 stations and minor damage was caused to internal structure from fore end of engine room back to the steering compartment. The cast iron sliding feet, and casings of L.P. and H.P. turbines port and starboard were fractured, and serious damage occurred to auxiliary machinery castings. Serious leakage from the oil fuel tanks internally was caused, almost completely flooding the after 4 inch magazine, and causing minor flooding in the engine room. Fighting Efficiency - Seriously impaired. The vessel was immobilised, with power and lighting lost, and was towed to Sheerness.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CATTISTOCK 10th Nov., 1940	One Near Miss size and type unknown Bomb	1 day	CATTISTOCK was attacked by enemy aircraft and suffered superficial damage, caused by bomb splinters. Fighting Efficiency - Not impaired.
VEGA 11th Nov., 1940 D.N.C.4B/R40	One Non-Contact Acoustic Mine 11 fathoms	2 years including 15 months permanent damage repairs	VEGA was escorting a convoy at 15 knots when an explosion occurred 10 yards to starboard abreast the engine room. The side plating from abreast the bridge back to the after end suffered minor damage due to dishing and buckling etc., and minor internal structural damage was caused. The sliding feet and casings of the L.P. and H.P. turbines, port and starboard, were fractured and serious damage occurred to the auxiliary machinery castings. Nos.1 and 2 boilers were put out of alignment. Minor flooding which occurred was controlled by steam ejector and fire and bilge pump. Fighting Efficiency - Severely impaired. Main lighting and power was lost and guns could only be fired in local control. The ship was immobilised and taken in tow. REMARKS This incident emphasised the need of upper deck control of the auxiliary steam bulkhead valve at the forward end of the engine room, and for an additional fire and bilge pump, or alternatively, suction and discharge valves on auxiliary feed pumps, to enable them to be used as bilge pumps.
DECOY 13th Nov., 1940	One Direct Hit 100 kgm delay action fuzed Bomb	10 weeks	DECOY while in harbour at Alexandria was attacked by enemy aircraft. A bomb struck the blast screen of 'X' gun and exploded whilst passing through the upper deck. Serious structural damage was caused within 12 ft. radius of the explosion, and serious splinter damage was caused aft, including holes in the outer bottom on the port side. A fire started in the after magazine, and the after magazine group was flooded as a precautionary measure. Leads to the port telemotor and steering motor were cut, and 'Y' gun was put out of action. Fighting Efficiency - Seriously impaired. REMARKS This incident emphasised the need for the spindle of the cross-connecting sluice, between the magazine and shell room to be extended to deck over, to facilitate easy opening of valve in emergency.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
JAVELIN 29th Nov., 1940 D.N.C.4B/R42	Two Contact Torpedoes fired from destroyer	13 months	JAVELIN while in company with other units, 20 miles south of the Lizard at 28 knots, was engaged by German destroyers. Two torpedo hits occurred on the starboard side, about 6 ft. below the waterline, one forward approximately 26 ft. forward of No.1 gun, and one aft approximately level with fore end of the after superstructure. The fore end, forward of No.1 gun, was blown away and the ship flooded back to the after end of the cold room. The engine room and forward magazine to No.2 gun group flooded slowly but the flooding was controlled. A serious oil fuel fire occurred aft but was got under control. Fighting Efficiency - Seriously impaired. Vessel was out of action.
SAGUENAY (R.C.N.) 1st Dec., 1940 D.N.C.4B/R63	One Contact Torpedo fired from submarine	4 months	SAGUENAY while escorting a convoy was struck by a torpedo on the port side about 20 ft. forward of 'A' gun. The fore end, almost back to 'A' gun was destroyed and the remaining structure below the forecastle deck, forward of the bridge, was severely damaged by a fire, which started in the paint store. The forward magazine group was flooded as a precautionary measure. Buckling occurred in the upper deck, side framing, and plating down to the waterline, in the vicinity of the fore end of the after superstructure. Fighting Efficiency - Seriously impaired. The forward guns were out of action, and the speed was reduced because of the damage.
CAMERON (Ex U.S.A.) 5th Dec., 1940 D.N.C.4B/R67	One Near Miss 250 kgm (probably 500 kgm) direct action fuzed Bomb	17 months (including 10½ months permanent repairs and conversion to experimental ship)	CAMERON while in No.8 dry dock at Portsmouth Dockyard during an air raid sustained severe damage from a bomb which struck the "broad altar" of the dock on the port side of the ship, abreast 77 station. The side plating for 70 to 80 ft. in way of the explosion, was blown in, and the explosion lifted the ship bodily displacing the breast and bilge shores so that the vessel turned over on her port side. The dock was flooded to help extinguish the severe oil fuel fire in both the ship and dock. This fire caused extensive structural damage. Fittings, wiring etc., were extensively damaged by the flooding and by oil fuel. Fighting Efficiency- Severely impaired. The vessel was completely out of action.

DESTROYERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WINDSOR 8th Dec., 1940	One Non-Contact Acoustic Mine 18 fathoms	17 weeks	WINDSOR while proceeding at 13 knots, sustained an explosion under the bottom about 144 station. Minor structural damage occurred abaft 126 bulkhead, some minor leaks developed in the oil fuel tanks and some compartments aft. Casings to port turbines, and the cast iron feet and casings of starboard L.P. and H.P. turbines were fractured. Fighting Efficiency - Seriously impaired. The vessel was immobilised, and all electric power lost.
MAORI 13th Dec., 1940	Machine gun attack	Nil	MAORI suffered superficial damage to superstructure by machine gun bullets. Fighting Efficiency - Not impaired.
ACHERON 17th Dec., 1940	One Contact size unknown Mine	Sunk	ACHERON proceeding at 27 knots near the Needles struck a mine on the port side forward. A serious fire occurred forward of the bridge, the ship heeled to port and sank by the bows in about 4 minutes.
BERKELEY 20th Dec., 1940	One Non-Contact Acoustic Mine	8 days	BERKELEY was approaching the Medway Gate at $9\frac{1}{2}$ knots, when an explosion occurred 30 yards off the port quarter. Structural damage was negligible, but keep-plates to L.P. and H.P. turbines port and starboard were fractured. Fighting Efficiency - Slightly impaired. Speed was reduced due to damaged keep-plates.
FORESIGHT 22nd Dec., 1940	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	FORESIGHT during an air raid on Liverpool sustained damage due to a near miss bomb. Minor damage occurred to the hull above the waterline, and to the superstructure plating at the fore end. Fighting Efficiency - Not impaired.
HYPERION 22nd Dec., 1940	One Moored Contact Mine (Torpedoed by own forces)	Sunk	HYPERION was proceeding in the Mediterranean 24 miles east of Cape Bon when a heavy explosion occurred under 'Y' gun. The ship's back was broken, and the after end flooded to 134 bulkhead. Boilers and auxiliaries were undamaged, but the port engine jammed and the starboard engine jumped badly, and could not be used. Due to inability to steam and the close proximity to Pantelleria, HYPERION was torpedoed and sunk by our own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WARWICK 23rd Dec., 1940	One Non-Contact Acoustic Mine	14½ months including 9½ months permanent damage repairs and conversion	WARWICK proceeding in the mouth of the Mersey at 18 knots sustained an explosion at the after end. Severe structural damage occurred in the area from amidships to after end and extensive damage was done to the main and auxiliary castings. The casting to the outlet of the port main condenser was fractured and the after boiler room and compartments abaft this were flooded. Fighting Efficiency - Severely impaired. The vessel was immobilised and beached.
VENOMOUS 30th Dec., 1940 D.N.C.4B/R45	One Non-Contact Acoustic Mine 10 fathoms	7 weeks	VENOMOUS while in Liverpool harbour entrance, proceeding at 12½ knots sustained an explosion 30 ft. to starboard abreast 'X' gun. Minor structural damage occurred from the main engine room to abreast the after end of the after superstructure. The after oil fuel tanks leaked into the engine room, gland space, and torpedo head room, and minor flooding from the sea occurred into the gland space and lower provision room. The sliding feet of the starboard H.P. turbine were fractured and the starboard dynamo was out of action due to fractured castings. Fighting Efficiency - Seriously impaired. The vessel was immobilised and taken in tow.
GALLANT 10th Jan., 1941 D.N.C.4B/R202	One Contact Mine	Not repaired	GALLANT while in action in company with ILLUSTRIOUS 25 miles S.E. of Pantellaria at 17 knots sustained an explosion forward under 'A' gun. The fore end from just forward of 'B' gun was completely blown off and floated separately for a short while. The bridge structure was intact and vessel was watertight abaft the after bulkhead of No.1 boiler room. The fore bulkhead of No.1 boiler room was holed and leaking and No.1 boiler room flooded. The keel, side plating and upper deck were buckled in the vicinity of the after end of the after torpedo tube position. The safety valves of Nos. 2 and 3 boilers were opened and no secondary lighting was available, except from torches and Oldham lamps, due to the flooding of the forward switchboard room which contained the L.P. batteries and generators. Fighting Efficiency - Severely impaired. The ship was immobilised and was towed stern first to Malta. REMARKS This incident emphasised the need for the L.P. generators and batteries to be staggered to ensure some form of illumination when one end of the vessel is damaged.

DESTROYERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CASTLETON (ex U.S.A.) 18th Jan., 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	CASTLETON while in hand for collision repairs in No.9 dock at Portsmouth Dockyard sustained superficial damage from bomb splinters during an air raid. Fighting Efficiency - Not impaired.
BOREAS 19th Jan., 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	BOREAS while in hand at Millwall Docks, London for repairs to bomb damage sustained on 25th July, 1940, suffered further superficial damage by bomb splinters during an air raid. Fighting Efficiency - Not impaired.
DECOY 19th Jan., 1941	One Direct Hit size unknown (probably 500 kgm) delay action fuzed Bomb	Nil (damaged whilst undergoing repairs)	DECOY whilst undergoing bomb damage repairs in Malta dockyard suffered further damage during an air raid. The bomb hit right forward on the forecastle deck passing through it, and out through the side plating starboard above the waterline finally exploding in the water. The fore end to 24 bulkhead was severely damaged and minor damage occurred aft to 41 bulkhead. Minor leaking took place through strained rivets and seams. Fighting Efficiency - Slightly impaired. 'A' gun support was buckled and the loading arm fractured. The asdic was out of action.
VIMIERA 30th Jan., 1941	Machine gun attack	Nil	VIMIERA while rejoining a convoy at 10 knots was machine-gunned by an enemy aircraft. Superficial damage to the bridge and superstructure occurred, and the forward gunshield was pierced by bullets. Fighting Efficiency - Not impaired.
ST. LAURENT (R.C.N.) 14th Feb., 1941	Near Miss size and type unknown Bomb	Nil	ST. LAURENT suffered minor structural damage during an enemy air attack, and slight leakage occurred through strained hull connections. Fighting Efficiency - Impaired. The A/S directing gear was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STUART (H.M.A.S.) 19th Feb., 1941	Three Near Miss size unknown delay action fuzed Bombs	Nil	STUART was attacked by enemy aircraft off Benghazi. Four sticks were dropped, the nearest being a stick of three bombs, which fell about 40 yards from the port quarter. The others were from 100-200 yards away from the port side. The stern whipped badly, and a depth charge rail was distorted, two charges falling on to the deck without exploding. The port dynamo came off the board, but no major damage occurred to the structure or main engines. Fighting Efficiency - Not impaired.
DAINTY 24th Feb., 1941	One Direct Hit size unknown (probably 500 kgm) very short delay action fuzed Bomb (Possibly with incendiaries attached)	Sunk	DAINTY, while proceeding off Tobruk at 20 knots, was attacked by an enemy aircraft. The bomb hit and penetrated the upper deck aft and exploded on, or near, the lower deck 130-142 stations. Severe internal structural damage occurred in the wake of the explosion, the ship's side, port, being opened up and the upper deck blown into the air. A serious oil fuel fire started aft, which eventually got out of control. The main engines were undamaged and the after bulkhead of the engine room remained watertight. All main lighting failed, but the secondary lighting remained on. A violent explosion then occurred aft (probably the warhead magazine) and the vessel broke her back, the stern sinking immediately. Twenty three minutes after the bomb had struck, the order to abandon ship was given. The vessel was abandoned with 60 ft. of the bow above water, but this quickly sank.
EXMOOR 25th Feb., 1941	Probably one contact torpedo fired from E-boat	Sunk	EXMOOR was attacked in the North Sea and sustained an explosion in or beneath the after part of the ship. The explosion split the hull causing severe internal damage probably from the tiller flat to the engine room. Oil fuel sprayed over the after end by the explosion, was ignited almost immediately and the after end was enveloped in flame. The fire spread rapidly forward and the ship heeled 20° to port. EXMOOR finally capsized to port, stood on end, and sank in about 10 minutes.
COSSACK 3rd March, 1941	One Non-Contact Acoustic Mine	Nil	COSSACK sustained minor structural damage and minor defects to auxiliaries from an underwater explosion. The cast iron feet of the starboard L.P. turbine were fractured. Fighting Efficiency - Slightly impaired. A reduction of speed due to the damaged castings was caused.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SHERWOOD (ex U.S.A.) 10th March,1941 D.N.C.4B/R66	Two Near Miss size unknown direct action fuzed Bombs	Nil (damaged whilst undergoing repairs)	SHERWOOD was damaged when berthed alongside the Middle Slip Jetty during an air raid on Portsmouth. The first bomb dropped 30 ft. off the port side abreast the bridge, and a second bomb exploded beneath the jetty 20 to 25 ft. to starboard abreast the bridge. Minor damage was caused by splinters from the first bomb, and water entered the electrical store through a splinter hole. The American 50 calibre machine gun sustained minor damage. Fighting Efficiency - Not impaired.
TYNDALE 11th March,1941 D.N.C.4B/R66	Three Near Miss size unknown delay action fuzed Bombs	9 days	TYNDALE was damaged during an air raid on Portsmouth whilst berthed alongside Pitch House Jetty. The bombs exploded off the starboard side, one abreast the engine room and two abreast No.1 gun causing minor superficial damage due to splinters. Minor damage to the castings of engine room auxiliaries occurred, and the cast iron feet of the starboard L.P. turbine were fractured. Fighting Efficiency - Slightly impaired.
CATTISTOCK 11th March,1941	Near Miss size and type unknown Bomb	5 days	CATTISTOCK was attacked by enemy aircraft whilst operating in the North Sea. A near miss caused some very minor defects. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WITHERINGTON 11th March, 1941 D.N.C.4B/R66	One Direct Hit 50 kgm delay action fuzed One Near Miss 50 kgm delay action fuzed Bomb	5½ months	WITHERINGTON was damaged during an air raid on Portsmouth whilst berthed alongside the South Slip Jetty. The bomb hit and perforated the upper deck, port side abreast the forward funnel passed through No.1 boiler room perforated the outer bottom and exploded below the keel. The port side plating just aft of the forward funnel was blown upwards, and fractured from the keel to 16 ft. above. The vessel whipped violently, and severe buckling was caused around the girth at a position about 14 ft. forward of the after superstructure with minor internal damage in way of the buckling. Both boiler rooms and some compartments aft flooded immediately, and minor damage occurred to the engine room auxiliaries. A near miss occurred forward under No.1 oil fuel tank causing the outer bottom plating in the vicinity to be blown upwards and fractured over a length of about 8 ft. No.1 oil fuel tank flooded immediately. Fighting Efficiency - Severely impaired. The vessel was immobilised due to loss of steam and 'Y' gun was out of action due to shock. Note. WITHERINGTON was towed to the mud flats and beached. If this damage had been sustained in action, the vessel would probably have founded on a long tow or in rough weather.
ANTHONY 16th March, 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	ANTHONY while berthed at Barclay Curle's yard, during an air raid on Glasgow, suffered superficial damage caused by splinters from a near miss. Fighting Efficiency - Not impaired.
VANOC 17th March, 1941	Rammed Submarine	3 months	VANOC while operating to the north west of Scotland, rammed a submarine. The bow structure below the lower deck was crushed for 10 ft., leaving the fore end open to the sea, and flooded. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LEWES (ex U.S.A.) 22/23rd March, 1941	Near Miss size and number unknown probably mixed delay and direct action fuzed Bombs	Nil (damaged whilst undergoing repairs)	LEWES during an air raid sustained a near miss close to the stern and several others around the ship. Minor structural damage was caused and superficial splinter damage occurred above the waterline. The ship's side and superstructure were perforated, and minor damage occurred to the machinery. Fighting Efficiency - Not impaired.
GRIFFIN 23rd March, 1941	One Near Miss size unknown direct action fuzed Bomb	Nil	GRIFFIN during an air raid on Malta sustained superficial damage due to splinters from a near miss Nos.1 and 3 oil fuel tanks were perforated above the waterline. Fighting Efficiency - Not impaired.
FORESTER 30th March, 1941	One Near Miss size and type unknown Bomb	1 month	FORESTER suffered minor damage and leaks in oil fuel tanks from a near miss during an enemy air attack. Fighting Efficiency - Slightly impaired. Endurance was reduced due to loss of oil fuel.
QUORN 1st April, 1941	Two Near Miss size unknown delay action fuzed Bombs	Nil	QUORN was attacked by enemy aircraft and two bombs exploded underwater about 20 yards off the port quarter. Very minor damage was sustained, four keeps to the L.P. turbines being fractured and No.5 oil fuel tank leaked slightly into the after magazine. Fighting Efficiency - Slightly impaired.
MOHAWK 16th April, 1941 D.N.C.4B/R205	Two Contact Torpedoes fired from destroyer 7 fathoms (sunk by gunfire from our own forces)	Sunk	MOHAWK was sunk whilst attacking an enemy convoy in the Mediterranean. 1st Torpedo struck the after end between 'X' and 'Y' mountings. About 50 ft. of the stern including 'Y' mounting was blown off and the vessel flooded aft, probably to the after bulkhead of the gearing room. 2nd Torpedo struck abreast No.3 boiler room causing severe damage mostly above the bilge keel extending from about mid length of No.2 boiler room to a few feet abaft of the forward bulkhead of the engine room. Immediate flooding of No.3 boiler room took place and No.2 boiler room and the engine room flooded rapidly. Within two minutes the vessel took a heavy list to port and settled on her beam ends, the after part being submerged to the torpedo tubes. The wreck was sunk by gunfire from JANUS.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WILD SWAN 20th April,1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	WILD SWAN was damaged during an air raid on London sustaining minor damage due to blast with the oil fuel tanks strained and leaking. Fighting Efficiency - Slightly impaired.
LEWES (ex U.S.A.) 21-22nd April, 1941	Near Miss number size and type unknown Bombs	7½ months	LEWES was damaged by near miss bombs during an air raid on Plymouth. Minor structural damage occurred and superficial damage was caused by splinters. The ship's side above the waterline, the port after oil fuel tank and the funnels being perforated. Steam pipes were holed by splinters and the forward bearing cap and main bearing pedestal of the starboard L.P. turbine were fractured. Fighting Efficiency - Impaired.
GREYHOUND 23rd April,1941	Near Miss size and type unknown Bomb	Nil	GREYHOUND during bombing and minelaying raids on Mersa-Matruh received minor damage from near misses. Fighting Efficiency - Not impaired.
DIAMOND 27th April,1941	One Direct Hit One Near Miss size and type unknown Bomb	Sunk	DIAMOND was dive bombed during the evacuation of Greece. One near miss forward made a large hole in the side plating. The direct hit occurred amidships, and the bomb exploded in the engine room destroying the mast and funnel. DIAMOND rapidly sank stern first.
WRYNECK 27th April,1941	Three Direct Hit size and type unknown Bombs	Sunk	WRYNECK was dive bombed during the evacuation of Greece. One bomb struck the forecastle near 'A' gun killing and wounding all bridge and gunnery personnel. Another bomb fell down the engine room hatch and wrecked all the steam pipes. A third bomb struck the after end and set on fire a R.U. ammunition locker. Ship was abandoned while still moving at 18 knots with a heavy list to port, and four minutes later she capsized to port and sank.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NUBIAN 29th April,1941	Two Near Miss size unknown (probably 250 kgm) delay action fuzed Bombs	Nil	NUBIAN was attacked by an enemy aircraft and sustained one near miss 20 ft. off the port bow and one 20 ft. ahead. Minor buckling and distortion of side plating and internal structure occurred from the stem to 36 station port, below the waterline and minor flooding took place through strained connections. Fighting Efficiency - Slightly impaired.
ENCOUNTER 29th April,1941 D.N.C.4B/R121	One Near Miss 1000 kgm probably 1500 kgm direct action fuzed Bomb	Nil (damaged whilst in dry dock) See Page 166	ENCOUNTER was docked in No.2 dry dock during an air raid on Malta when a bomb exploded on the dock steps abreast the bridge on the starboard side. Extensive and serious damage was caused by splinters over the whole of the starboard side and steam pipes, firemains and the boiler were pierced. A minor fire started in wake of the damaged peace tanks starboard which spread to No.2 boiler room and down the ship's side to the dock blocks. Had water been in the dock, or the vessel at sea, the damaging effect of the splinters would have been greatly reduced. Fighting Efficiency - Severely impaired. Nearly all lighting and power was out of action and 4.7 inch and 3 inch guns and .5 inch machine guns were severely damaged. REMARKS Proposed C.A.F.O. on D.N.C.5760/41. Further to C.A.F.O.1650/41, a fire recently occurred in the boiler room of a destroyer through the sullage in the "peace" oil tanks being ignited by a bomb splinter penetrating the tank from a "near-miss". The attention of Commanding Officers is called to the necessity of completely draining the "peace" tanks as soon as the peace oil has been used.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ENCOUNTER 30th April,1941 D.N.C.4B/R121	One Direct Hit 50 kgm delay action fuzed Bomb	Nil (damaged whilst in dry dock) See Page 166	ENCOUNTER was docked in No.2 dry dock at Malta when a bomb hit on the forecastle deck just abaft the starboard hawse pipe. It perforated the upper and lower decks and exploded in the A/S directing compartment. The ship's side port was blown out over a height of 8 ft. above the keel, and the internal structure was seriously damaged for 16 ft. above the keel. The lower deck was blown upwards. A minor fire occurred in the A/S compartment and mess deck. Fighting Efficiency - Seriously impaired. If vessel had been at sea considerable flooding would have occurred and the A/S directing gear would have been out of action.
JERSEY 2nd May, 1941	One Contact Mine	Sunk	JERSEY was mined in the entrance to Grand Harbour, Malta, no details of damage are available.
SOUTHDOWN 4th May, 1941	Two Near Miss 250 kgm delay action fuzed Bombs	Nil	SOUTHDOWN was operating in the North Sea during a low level attack by enemy aircraft, when bombs fell 10 to 30 yards to port. Minor structural damage was caused and slight leakage occurred in Nos.2 and 3 magazines. The holding down bolts of all turbines were bent. The port steering motor was badly damaged and the starboard steering motor slightly damaged. Fighting Efficiency - Impaired. The port steering motor was out of action and speed was reduced due to machinery damage.
NEWARK (ex U.S.A.) 4-5th May, 1941	Size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	NEWARK while undergoing repairs at Belfast was damaged during an air raid, as also was some of the ship's equipment which had been landed in the dockyard for repair. At the time the ship was already out of action as a fighting unit.
VOLUNTEER 5th May, 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	VOLUNTEER, during an air raid on Belfast, suffered extensive but not serious splinter damage to hull and superstructure plating above the waterline from near miss bombs. Fighting Efficiency - Not impaired.

DESTROYERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHADDON 8th May, 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	WHADDON during an air raid in the Hull area suffered superficial damage caused by bomb splinters. Fighting Efficiency - Not impaired.
VIVACIOUS 8th May, 1941	Near Miss size and type unknown Bomb	Nil (damaged whilst undergoing repairs)	VIVACIOUS during an air raid in the Hull area suffered superficial damage caused by bomb splinters. Fighting Efficiency - Not impaired.
HURRICANE 8th May, 1941 D.N.C.4B/R72	One Direct Hit 250 kgm delay action fuzed Bomb	8 months	HURRICANE was berthed in the Gladstone wet dock during an air raid on Merseyside and district, and she received a direct hit from a bomb on the upper deck edge port at 132 station. The bomb passed out through the port side and exploded under the bottom causing a hole in outer bottom with plating dished upwards over an area 24 ft. by 15 ft. The internal structure in way of the explosion was wrecked. Immediate flooding of the after oil fuel tanks and engine room occurred and compartments aft of this flooded slowly. The stern dropped $2\frac{1}{2}$ ft. Electrical circuits and machinery abaft the fore and bulkhead of the engine room received serious damage. Fighting Efficiency - Seriously impaired. Vessel was immobilised due to the flooding of the engine room and loss of oil fuel. The after gun could not be used due to the flooded magazine and the after depth charge group was out of action. In adverse weather conditions the vessel would probably have foundered on a long tow.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VISCOUNT 8th May, 1941 D.N.C.4B/R72	One Near Miss 250 kgm direct action fuzed Bomb	10 months including conversion	VISCOUNT whilst berthed in the Gladstone wet dock during an air raid on Mersey-side and district, received a very near miss on the starboard side, abreast the after bulkhead of the after boiler room. The after bulkhead of the after boiler room suffered minor damage and the side plating in the vicinity from bilge keel to the sheer strake over a length of about 24 ft. was blown inboard. Minor splinter damage was caused. No.3 boiler was wrecked, the bearings to the starboard L.P. turbines were twisted and serious damage was done to the auxiliaries. The engine room and after boiler room flooded immediately. Fighting Efficiency - Seriously impaired. The ship would have been immobilised if at sea, due to the flooding of the engine room and boiler room. In adverse weather conditions the ship would probably have foundered on a long tow.
FORTUNE 10th May, 1941 D.N.C.4B/R178	Near Miss number and size unknown delay action fuzed Bombs	6½ months including refit	FORTUNE while proceeding in the Mediterranean, was attacked by enemy aircraft and received major damage from a near miss which exploded 20 ft. under the stern near the after cut up, and minor damage from other near misses. Just forward of the cut up the starboard side plating was split vertically over a length of 12 ft., below the waterline and buckled each side of the split. About 15 ft. forward of this split on the port side the side plating was buckled from keel to the sheer strake over a length of about 6 ft. Severe internal damage occurred and the starboard plummer block was fractured. Immediate flooding of the after magazine and shell room took place, and slow flooding of the warhead magazine and the after oil fuel tanks occurred. Minor flooding took place in the engine room and other compartments aft. Fighting Efficiency - Seriously impaired. The efficiency of the starboard engine was greatly reduced due to the bent shafting and damaged structure. The after guns were out of action due to flooded magazines. REMARKS This incident emphasised the need for a greater allowance of timber for shoring purposes and for pumping facilities to be improved. Modification is necessary to strainers and strum boxes to prevent choking and a portable connection is required between the oil fuel tank suction line and bilge pumps to facilitate pumping in an emergency. Emergency jumping ladders should be fixed in position under escape hatches for ready use in an emergency.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BROADWAY (ex U.S.A.) 11th May, 1941	One Direct Hit calibre and type unknown Shell	2 months	BROADWAY sustained a direct hit below the waterline forward on the port side. The forward 4 inch and S.A. magazine was flooded to the platform deck and oil fuel tanks in this vicinity leaked. Two blades of the port propeller were broken. Minor splinter damage occurred on the port side forward. Fighting Efficiency - Seriously impaired. The forward guns were out of action. Endurance and speed was reduced by the loss of oil fuel and damaged propellers.
RIPLEY 12th May, 1941	Near Miss size and type unknown Bomb	Nil	RIPLEY sustained minor damage from near misses. Splinters caused a small cordite fire on the upper deck. Fighting Efficiency - Not impaired.
ANTHONY 13th May, 1941	Near Miss size and type unknown Bomb	Nil	ANTHONY during an air raid on the Glasgow district suffered minor superficial damage from splinters. Fighting Efficiency - Not impaired.
ENCOUNTER 16th May, 1941 D.N.C.4B/R121	One Direct Hit 50 kgm delay action fuzed Bomb	Nil (damaged whilst in dock) Vessel fit for service 11th July, 1941. See 162 and 163	ENCOUNTER was in dock during an air raid on Malta. A direct hit struck the .5 inch machine gun platform on the port side, perforated the upper deck and exploded in the port bilges of No.2 boiler room. The ship's side plating was blown out and extensive and serious splinter damage occurred. No.2 boiler and boiler room auxiliaries were severely damaged. The ring main was cut and all high and low power cables on the port side were destroyed. Fighting Efficiency - Seriously impaired. If the vessel had been at sea fighting efficiency would have been seriously impaired.
JUNO 21st May, 1941	Direct Hit size and type unknown Bombs	Sunk	JUNO was attacked by dive bombers during the evacuation of Crete and sank in 2 minutes. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GREYHOUND 22nd May, 1941	Two Direct Hit size and type unknown Bombs	Sunk	GREYHOUND during the evacuation of Crete was attacked by dive bombers. The ship was struck by two bombs and sank stern first within 15 minutes. No further information available.
KINGSTON 22nd May, 1941	Four Near Miss 100 kgm delay action fuzed Bombs	Approximately 1 week	KINGSTON during the evacuation of Crete was damaged by three near miss bombs 20 ft to starboard and one 50 ft. to port. Minor damage occurred to the hull and structure. The petrol compartment and naval store were flooded. The cast iron feet of port and starboard H.P. turbines were fractured. Severe damage occurred to auxiliary machinery castings and the starboard plummer block was fractured. Fighting Efficiency - Seriously impaired.
KELLY 23rd May, 1941	One Direct Hit size and type unknown Bomb	Sunk	KELLY was attacked by dive bombers during the evacuation of Crete. A large bomb hit the ship which capsized to port and floated bottom up for half an hour before sinking. No further information available.
KASHMIR 23rd May, 1941	Direct Hit size and type unknown Bomb	Sunk	KASHMIR was attacked by dive bombers during the evacuation of Crete. The ship sank within 2 minutes of being hit. No further information available.
HAVOCK 23rd May, 1941	Number unknown Near Miss size unknown (probably 500 kgm) direct action fuzed Bombs	Approximately 3 weeks	HAVOCK during the evacuation of Crete was attacked by dive bombers and sustained damage from near misses, the nearest of which was 15 ft. from the starboard side abreast the bridge. Severe splinter and blast damage occurred in the vicinity of the bridge on the starboard side, and the ship's side plating in the vicinity was holed by splinters from 3 ft. below waterline to the upper deck level. The foremost oil fuel tanks were holed and opened up to the sea. No.1 boiler was put out of action due to punctured main steam and feed pipes, cut tubes, and partial flooding of the boiler room. Important electric cables were severely damaged. A fire started in the decontamination store but it was rapidly extinguished. Fighting Efficiency - Impaired. Speed was reduced due to the No.1 boiler room being out of action and the radius of action was cut down due to the flooding of the forward oil fuel tanks.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ILEX 23rd May, 1941	One Near Miss size unknown delay action fuzed Bomb	Approximately 4 days	ILEX was damaged during the evacuation of Crete by a near miss under the stern. The propellers and rudder were damaged and minor flooding occurred at the after end. Fighting Efficiency - Impaired.
NUBIAN 26th May, 1941	One Direct Hit 500 kgm direct action fuzed Bomb	17 months	NUBIAN when attacked by enemy aircraft sustained a direct hit on the upper deck just abaft 'Y' gun. The stern structure from 'Y' mounting to the stern was blown away above the waterline and internal structure below the waterline was damaged. Immediate flooding occurred abaft gearing room and Nos. 3 and 4 magazines were flooded as a precautionary measure against fire. Fighting Efficiency - Seriously impaired. 'Y' mounting and the steering gear was destroyed. The vessel steamed to port at 22 knots, steered by main engines.
COSSACK 26th May, 1941	"Shorts" 15" and 5.9" number and type unknown Shells	Nil	COSSACK was engaged in action with BISMARCK when the main W.T. aerials were shot away by splinters from "shorts". Fighting Efficiency - Impaired. The ship was unable to transmit.
ZULU 27th May, 1941	"Shorts" 15" and 5.9" number and type unknown "Shells"	10 weeks	ZULU was in action with BISMARCK when superficial damage was caused by splinters. The side plating starboard was perforated below the waterline in way of the tiller flat and minor flooding occurred. Some damage was done to H.P. and L.P. cables. Fighting Efficiency - Slightly impaired. The D.C.T. was damaged.
HERO 27th May, 1941	Near Miss size and type unknown Bomb	Nil	HERO was bombed during the evacuation of Crete. A near miss caused the ship to reduce speed temporarily to 28 knots. Details of damage are not known. Fighting Efficiency - Temporarily impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MASHONA 28th May, 1941 D.N.C.4B/R97	One Near Miss (close alongside) 100 kgm direct action fuzed number unknown Near Miss direct action fuzed Bombs (wreck sunk by gunfire by own forces)	Sunk	MASHONA while in position about 70 miles west of the Shannon Estuary was subjected to 6 bombing attacks. One near miss port, during the 4th attack, fell close alongside in the vicinity of the forward bulkhead of No.1 boiler room, blowing a hole in the side plating 14 ft. by 5 ft. just above the waterline, and causing severe structural damage in the vicinity. Extensive splinter damage was caused to No.1 boiler room and to steam and feed lines and minor splinter damage occurred over the port side from abreast the forward gun mounting to abreast No.2 boiler room. Flooding began by waves breaking in through the holes in the side and as the ship listed to port the rate of flooding increased. No.1 boiler room and A.4 oil fuel tank flooded rapidly. No.2 boiler room and the crew spaces in the lower deck aft of 30 bulkhead flooded more slowly through splinter holes. A 2 oil fuel tank and 'B' magazine also flooded slowly and water commenced to enter No.3 boiler room shortly before the ship was abandoned. Minor splinter damage and flooding occurred at the ends of ship due to near misses. A fire which started in 'B' magazine was put out by controlled flooding. The steering engines were out of action and guns fired in local control only. All lighting was lost and power finally failed due to lack of feed water and flooding of No.2 boiler room. The 5th and 6th attacks caused further minor damage. The ship was abandoned about 1 hour and 20 minutes after the 4th attack, being flooded from the fore bulkhead of the forward magazine group aft to the after bulkhead of No.2 boiler room. She then slowly capsized and floated bottom up, finally being sunk by gunfire from own forces. REMARKS This incident emphasised the danger of lining the ship's side in the vicinity of the waterline. (Linings on ship's side were removed as a result of C.A.F.O.1214/40 but were replaced in accordance with C.A.F.O.1665/41).

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IMPERIAL 28th May, 1941	Five Near Miss size and type unknown Bombs	Nil	IMPERIAL when attacked by dive bombers near Crete sustained near misses at the after end. Superficial damage was caused by splinters but examination disclosed no serious damage. Fighting Efficiency - Not impaired.
HEREWARD 29th May, 1941	Direct Hit size and type unknown Bombs	Sunk	HEREWARD while engaged in the evacuation of Crete was hit by bombs from enemy aircraft and sunk. No further information available.
NIZAM (H.M.A.S.) 29th May, 1941	One Near Miss 250 kgm delay action fuzed Bomb	1 week	NIZAM when attacked by enemy aircraft suffered a near miss 15 ft. off the port quarter. Minor structural damage was sustained and minor leaks occurred in the after oil fuel tanks. The port plummer block was put out of alignment. Fighting Efficiency - Slightly impaired.
DECOY 29th May, 1941	Five Near Miss size unknown delay action fuzed Bombs	Nil	DECOY while proceeding from Heraklion to Alexandria was attacked by enemy aircraft. The bombs exploded underwater on the port side at the after end of the engine room. Minor structural damage was caused and the engine room bulkheads were slightly buckled. The cast iron feet to the L.P. turbines were fractured and minor damage was caused to auxiliary machinery castings. Fighting Efficiency - Slightly impaired. Speed was reduced to 26 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KELVIN 30th May, 1941	One (probably two) Near Miss 250 kgm delay action fuzed Bomb	6½ months	KELVIN while proceeding in the Mediterranean was attacked by enemy aircraft and sustained a near miss, 10 ft. off the starboard side aft, which exploded under the stern. The outer bottom plating and internal structure between the cut-up and 83 bulkhead was severely buckled and the contour plate at the cut up was fractured in three places. Minor damage occurred forward from 32 to 43 stations. Flooding of warhead and after 4.7 inch magazine, spirit room and gland spaces occurred. The after end dropped slightly and the port shaft was distorted. The sliding foot of the starboard inner H.P. turbine was fractured and minor damage was done to auxiliaries. Fighting Efficiency - Seriously impaired. The after guns were out of action due to flooding. A reduction of speed was caused by the damaged shafting, and the vessel returned to base at 21 knots.
NAPIER 31st May, 1941	Two Near Miss 250 kgm delay action fuzed Four Near Miss 100 kgm delay action fuzed Bombs	6 weeks	NAPIER was attacked by enemy aircraft and sustained several near misses. One 250 kgm bomb fell 10 ft. from the port side abreast the after end of engine room and the other at an unknown distance. The four 100 kgm bombs fell to starboard abreast the engine room. Minor structural damage was sustained between the forward bulkhead of No.2 boiler room and the after bulkhead of the gearing room. Extensive damage occurred to main and auxiliary machinery and the fixed and sliding feet of both H.P. turbines were fractured. Oil fuel pumps in No.2 boiler room fractured, and oil sprayed over the compartment. Fighting Efficiency - Seriously impaired. No.2 boiler room was temporarily out of action and speed was reduced to 24 knots.
JANUS 9th June, 1941 D.N.C.4B/R192	Five Direct Hit 5.5 inch delay action fuzed Shells	9½ months including refit	JANUS during an action with French destroyers in the Eastern Mediterranean off Sidon sustained five direct hits with shells. Hits in No.1 boiler caused minor structural damage. A serious fire was started, and this and splinter damage put the boiler room out of action. Hits on the bridge and in the vicinity of the spirit room caused minor structural damage. Extensive splinter damage was sustained by the ship. Fighting Efficiency - Seriously impaired. No.1 boiler room was out of action and serious damage occurred to electrical equipment. The vessel was taken in tow to Haifa.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
JACKAL 9th June, 1941	One Direct Hit 5.5 inch direct action fuzed Shell	Nil	JACKAL when in action with some French destroyers off the Syrian coast, sustained a direct hit on the upper deck aft, abreast the port paravane davit. Minor structural damage was caused and splinters damaged the paravane gear. Two in number depth charges were split open, but did not explode. A minor fire occurred in the tiller flat but it was soon extinguished. Fighting Efficiency - Slightly impaired. The capacity of the depth charge rack was reduced to two charges. Paravanes and associated gear were out of action.
ISIS 15th June, 1941 D.N.C.4B/R102	Two Near Miss estimated 1000 lbs. delay action fuzed Bombs	17½ months	ISIS while operating in the Mediterranean was attacked by enemy aircraft. Two near misses occurred on the starboard side, one close to the ship abreast the forward bulkhead of No.1 boiler room and the other abreast the forward magazine. A fracture occurred in the ship's side starboard at the forward bulkhead of No.1 boiler room about 2 ft. maximum width by 10 ft. in depth, and considerable distortion and buckling of decks and main hull structure occurred just aft of the after torpedo tube mounting. Minor damage occurred forward from the main fracture to the forward bulkhead of the forward magazine. All compartments below the upper deck between the after bulkhead of No.1 boiler room and the after bulkhead of the cable locker were flooded. The propeller shafts were bent, and the stern had probably dropped. Fighting Efficiency - Severely impaired. The manoeuvrability of the ship was lost, maximum speed obtainable was 10 knots with an excessive trim by the bows and limited range due to loss of oil fuel. Guns could be fired in local control only and for a limited period, all the forward ammunition supply being lost due to the flooding of the forward magazine group. W/T and A/S were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ILEX 15th June, 1941	Probably 500 kgm type unknown Bomb	15 months Repaired in U.S.A.	ILEX was attacked and bombed by French aircraft in the Eastern Mediterranean. The estimated position of the explosion was under the after end of No.2 boiler room between 10 and 15 ft. to starboard of the middle line. Severe structural damage was caused, the forward and after bulkheads of No.2 boiler room were distorted and the keel hogged in the vicinity. The after bulkhead of No.3 boiler room was distorted at the lower end. Shell plating and framing were badly distorted on both sides of ship near the centre of No.3 boiler room and slightly distorted over the rest of amidships. Flooding occurred in Nos.2 and 3 boiler rooms but in No.2 boiler room it was controlled by the ship's pumps. The diesel generator was thrown from its bedplate and lighting circuits in No.2 and 3 boiler rooms were damaged by flooding. The gyro compass was rendered useless. Fighting Efficiency - Severely impaired. All boilers were temporarily out of action and ship was unseaworthy due to the structural damage.
JACKAL 15th June, 1941	One Direct Hit 500 kgm delay action fuzed Bomb	Nil	JACKAL while being attacked by aircraft off the Syrian coast sustained a direct hit on the edge of the upper deck port side about 16 ft. from the after end. The bomb was deflected and passed overboard where it exploded. Minor damage occurred to the hull plating in the vicinity of the hit. The main engines and armament were undamaged. Fighting Efficiency - Unimpaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VANESSA 19th June, 1941 D.N.C.4B/R74	One Direct Hit 100 kgm delay action fuzed Bomb	9 months including conversion	VANESSA while escorting a convoy off Cromer was attacked by an enemy aircraft. A direct hit was sustained on the sheer strake at the fore end of No.1 boiler room, and the bomb finally burst on the ship's bottom in No.1 boiler room. The outer bottom plating was blown upwards over the whole length of No.1 boiler room and 9 ft. forward of it, between 2nd longitudinal starboard and bilge keel port, and a hole 6 ft. by 9 ft. was made in the outer bottom. Severe damage was caused to the surrounding structure. The upper deck plating was split and blown upwards from near the after end of No.2 boiler room to the bulkhead at the fore end of No.2 oil fuel tank and the E.R.A's and C.P.O's messes. Immediate flooding of Nos.1 and 2 boiler rooms and No.2 oil fuel tank took place. No.1 boiler room was wrecked, No.1 boiler exploded and No.2 boiler was severely damaged. The forward funnel was blown overboard and the after funnel was wrecked. Fighting Efficiency - Severely impaired. The vessel was immobilised and out of action and was taken in tow to Yarmouth. Guns could only be fought in local control. The main W/T was destroyed and the D/G was out of action.
ARROW 21st June, 1941 D.N.C.4B/R73	One Non Contact Acoustic Mine	5 months	ARROW was 4½ miles from Flamborough Head when a mine exploded about 50 ft. off the starboard quarter abreast 160 station. Speed at time was 20 knots. Minor structural damage occurred in way of machinery spaces. Oil fuel leaked from Nos.4, 5 and 6 oil fuel tanks into adjacent compartments below the lower deck. The keeps of sliding feet of all H.P. and L.P. turbines and boilers were lifted and distorted and holding down bolts strained. Severe damage occurred to auxiliary machinery castings and all lighting and power was temporarily lost. Fighting Efficiency - Severely impaired. 'Y' gun, torpedo tubes and D/G were out of action due to shock. A reduction of speed was necessary due to machinery damage, Nos.2 and 3 boilers were out of action, and vessel steamed to port on No.1 boiler at 9 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PYTCHLEY 23rd June, 1941 D.N.C.4B/R200	One Non Contact Acoustic Mine 23 fathoms	4 months	PYTCHLEY while proceeding at 15 knots about 2 miles from Flamborough Head sustained an explosion under the stabiliser compartment. Minor structural damage occurred to the hull plating which was corrugated generally forward of machinery spaces. Minor leaks occurred in the engine room and forward oil fuel tanks. The sliding feet of port and starboard H.P. turbines and the feet of port and starboard plummer blocks were fractured. Nos. 1 and 2 boilers were forced off their seatings and their feet strained, and serious damage occurred to auxiliary machinery castings. Fighting Efficiency - Seriously impaired. All lighting and power was lost, the D.G. was out of action and the guns could be fired in local control only. The vessel was immobilised due to the main machinery damage and was towed to port.
LIDDESDALE 25th June, 1941	Two Near Miss size and type unknown Bombs	Nil	LIDDESDALE when attacked by enemy aircraft, sustained two near misses by small bombs close to the starboard quarter. Minor structural damage was caused and both steering motors was temporarily out of action. Fighting Efficiency - Temporarily impaired.
WATERHEN (H.M.A.S.) 29-30th June, 1941	Number unknown Near Miss size unknown (mixed one large and four small per stick) delay action fuzed Bombs	Sunk	WATERHEN while on passage to Tobruk was attacked by enemy aircraft. First stick of bombs fell about 30 ft. clear of port bow and shook the ship severely, starting a leak in No.1 oil fuel tank and causing the W/T aerials to carry away. Second stick fell 50 ft. astern. Third stick fell close alongside the port side abreast the high angle gun. The wheel jammed, the vessel listed to port, and the boiler fires were blown out, so that the ship stopped. A hole 8 ft. long was blown in the ship's side below the waterline between the engine room and No.3 oil fuel tank. The engine room and main cabin flat flooded immediately. The flooding in the cabin flat was caused by severe structural damage the extent of which was unknown. The tiller flat and No.2 boiler room was partially flooded. The vessel was abandoned 25 minutes after being attacked with a heavy list to starboard. Some $3\frac{1}{2}$ hours after the attack WATERHEN was reboarded and a tow was passed to DEFENDER. At 0015/30 whilst still in tow the list became greater and the ship was again abandoned although the tow proceeded. About $1\frac{1}{2}$ hours later WATERHEN capsized and sank.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOLDERNESS 5th July, 1941	One Non-Contact probably Acoustic Mine	26 days	HOLDERNESS while on convoy duties in the North Sea suffered a heavy explosion beneath the ship on the starboard side abreast the fore end of the bridge. Speed at the time was 26 knots. Very minor structural damage occurred in way of the explosion. Minor flooding occurred in No.1 boiler room and No.1 boiler was shut down due to loss of feed water. Minor damage was done to castings. Fighting Efficiency - Seriously impaired. Speed was reduced to 7 knots. No.2 gun was temporarily in local control, and the rangefinder A/S, D.G. and gyro were out of action due to shock.
DECOY 9th July, 1941	One Near Miss size and type unknown Bomb	Nil	DECOY while proceeding from Tobruk to Alexandria was attacked by enemy aircraft and a near miss bomb exploded underwater near No.1 boiler room and No.4 O.F. tank. Minor structural damage occurred to the side plating in the vicinity of the explosion. No.1 boiler room and Nos.2 and 4 oil fuel tanks sustained minor leaks. Minor damage was done to auxiliary machinery. Fighting Efficiency - Slightly impaired.
DEFENDER 11th July, 1941	One Near Miss probably 1000 kgm delay action fuzed Bomb	Sunk	DEFENDER while returning from Tobruk to Mersa Matruh, was attacked by enemy aircraft and a near miss bomb exploded under the ship just abaft the forward bulkhead of the engine room. The engine room and after boiler room flooded immediately and all power failed. The ship listed, and it appeared probable that her back was broken. DEFENDER was taken in tow by VENDETTA but finally sank whilst off Sidi Barani about 5 hours after the attack.
VENDETTA 15th July, 1941	Near Miss size and type unknown Bomb	Nil	VENDETTA was alongside a pier at Tobruk during an enemy air attack when splinters from a near miss damaged the hull plating forward and flooding occurred in the Stoker's messdeck. Fighting Efficiency - Slightly impaired. There was a possibility of speed reduction to prevent extension of flooding through damaged plating.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GARTH 23rd July, 1941	One Near Miss size unknown delay action fuzed Bomb	Nil	GARTH was escorting a convoy when many bombs were dropped around her during an air attack, and minor damage was caused by one near miss bomb. The keep plates to 4 in No. turbine sliding feet were fractured. Fighting Efficiency - Slightly impaired. Speed was reduced due to damaged keep plates.
FIREDRAKE 23rd July, 1941	One Near Miss 100 kgm direct action fuzed Bomb	6 months including 4 months permanent damage repairs in U.S.A.	FIREDRAKE, while escorting a convoy, was attacked by enemy aircraft. A near miss exploded close alongside No.1 boiler room, starboard. Severe structural damage was sustained and the side plating was blown inwards from upper deck to bilge keel over most of the length of No.1 boiler room and over the fore end of No.2 boiler room. Minor damage was caused by splinters. Immediate flooding of Nos.1 and 2 boiler rooms occurred. No.1 boiler was lifted 19 inches to port and No.2 boiler was lifted 1½ inches to port. Fighting Efficiency - Seriously impaired. The gyro was out of action, starboard ring main fractured, and multicore cables to T.S. (after group) cut. The vessel was temporarily immobilised due to loss of feed water in No.3 boiler and the vessel was taken in tow, but steam was later raised in No.3 boiler and speed increased to 9 knots, the tow later being cast off.
FEARLESS 23rd July, 1941	One Contact Torpedo dropped by aircraft. Wreck sunk by torpedoes from own forces	Sunk	FEARLESS was attacked by an Italian torpedo bomber whose torpedo struck the ship just forward of the after superstructure. Severe structural damage was sustained in way of hit and the after bulkhead of the engine room was split. The ship was stopped, all lighting and power lost and the rudder jammed hard to port. A fierce fire raged, from searchlight to 'Y' gun, in the ship. The starboard engine could not be used due to loss of lubricating oil and the switchboard was wrecked. The vessel was finally abandoned for tactical reasons and sunk by our own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUORN 18th Aug., 1941 D.N.C.4B/R71	One Non-Contact Acoustic Mine 8 fathoms	1 month	QUORN, whilst proceeding from Harwich to Chatham at 12 knots, sustained an explosion off the port quarter abreast the after gun mounting. Minor damage occurred to the side plating on the port side aft. The keeps to the feet of the H.P. turbines were strained, and minor damage was caused to auxiliary machinery castings. Fighting Efficiency - Slightly impaired. A speed limit restriction was necessary due to the damaged keep plates. The vessel proceeded to Sheerness at 12 knots.
KIPLING 21st Aug., 1941	Four Near Miss 500 lbs. delay action fuzed Bombs	Nil	KIPLING, while returning from Tobruk to Alexandria, was attacked by enemy aircraft. One near miss fell 50 ft. off the starboard side and three bombs fell from 100 to 50 ft. off the port side abreast 'X' gun. The ship was badly shaken and one feed pipe was damaged and seized up due to shock. Fighting Efficiency - Slightly impaired. One feed pipe was temporarily out of action.
NIZAM (H.M.A.S.) 21st Aug., 1941	Two Near Miss 500 lbs. delay action fuzed Bombs	Nil	NIZAM, while returning from Tobruk to Alexandria, was attacked by enemy aircraft. Two bombs dropped to starboard, one abreast the funnel and the other abreast No.2 4.7 inch gun. The cast iron feet of the oil fuel pumps were damaged, and both boilers were shut down due to danger of fire from oil fuel which flooded both boiler rooms. This caused temporary failure of all lighting and power. The shock also damaged the gyro compass, aerials and castings of auxiliary machinery. Fighting Efficiency - Seriously impaired. The ship was immobilised for nearly three hours, but was later able to steam under her own power and attain a speed of 20 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WOLFHOUND 3rd Sept., 1941	Number unknown Near Miss size unknown delay action fuzed Bombs	19 months	WOLFHOUND, while on convoy duties in the North Sea at 24 knots, was attacked by an enemy aircraft. One or more near miss bombs exploded just beneath the ship abreast the forward gun causing severe structural damage to the hull, bulkhead and internal structure in the vicinity. A fracture 6" wide appeared from the upper deck down the starboard side just forward of the after funnel and the fore end dropped about 5°. Severe corrugations were caused around the girth forward of the after superstructure. The forward boiler room flooded immediately and most compartments forward flooded slowly. The sliding feet (modified as C.A.F.O.1482/40) of H.P. turbines and port gear case were fractured and minor damage occurred to auxiliary machinery castings. About 26 minutes after the bombs had exploded the structure forward of the after funnel parted and sank. Fighting Efficiency - Severely impaired. The vessel was immobilised due to the destruction of the fore end and loss of power. Guns remaining were in local control and the main W/T was temporarily out of action. REMARKS This incident emphasised:- 1. That the method of securing the emergency trip mechanism of the dynamo was unsatisfactory and caused a total blackout. 2. The need for resiliently mounted light fittings. A continued blackout in many compartments was experienced due to breakage of lamp bulbs.
KANDAHAR 5th Sept., 1941	One Near Miss size unknown direct action fuzed Bomb	Nil	KANDAHAR, while at Alexandria, was attacked by enemy aircraft and sustained a near miss off the starboard bow. Splinter damage was caused to the fore end from the stem to abreast 'A' mounting and from the forecastle deck to the waterline. Superficial damage occurred to fittings and main structure. Electrical circuits suffered minor damage. Fighting Efficiency - Not impaired.
KIMBERLEY 8/9th Sept., 1941	Number unknown Near Miss size unknown Bombs	Nil	KIMBERLEY while on passage to Tobruk was attacked by enemy aircraft and sustained minor structural damage from near misses. Fighting Efficiency - Not impaired.

DESTROYERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KIPLING 8/9th Sept., 1941	One Near Miss 500 lbs. delay action fuzed Bomb	Nil	KIPLING, while near Tobruk Harbour moving at 25 knots, was attacked by enemy aircraft and a near miss bomb fell five yards from the starboard side abreast the funnel. No major damage was done to hull structure. The feet of two oil fuel pumps were broken. Fighting Efficiency - Not impaired.
DECOY 9th Sept., 1941	One Near Miss 500 lbs. delay action fuzed Bomb	Nil	DECOY, while proceeding from Tobruk to Alexandria at 25 knots, came under enemy air attack and a near miss bomb burst under the forward boiler room. Minor leaks occurred in oil fuel tank bulkheads in the vicinity of the burst and shock caused minor damage to machinery. Fighting Efficiency - Not impaired.
VIVACIOUS 3rd Oct., 1941	One Near Miss direct action fuzed Bomb	Nil	VIVACIOUS, while in the North Sea moving at 20 knots, was attacked by enemy aircraft and sustained a near miss 100 ft. astern. The rudder jammed at 4° to starboard, but repairs were effected in $4\frac{1}{2}$ hours. Fighting Efficiency - Temporarily impaired.
BROADWATER (ex U.S.A.) 18th Oct., 1941 D.N.C.4B/R91	One Contact Torpedo fired from submarine and gunfire of own forces	Sunk	BROADWATER, while escorting a convoy 500 miles west of Londonderry, moving at $6\frac{1}{2}$ knots, was struck at the fore end by a torpedo. The fore end was missing from the stem back to the middle of the bridge structure, the fore end of the wheelhouse and nearly the whole of the upper bridge being demolished. Severe buckling occurred to the main deck and the ship's side abaft the aftermost funnel. The ship hogged with her back apparently broken. The main engines and dynamos were immediately put out of action by the explosion. BROADWATER was finally sunk by the gunfire of our own forces 10 hours after the explosion.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COSSACK 23/27th Oct., 1941	One Contact Torpedo fired from submarine	Sunk	COSSACK, while escorting a convoy off the west coast of Africa, moving at 13 knots, was struck by a torpedo on the port side abreast 'B' gun. The whole of the structure forward of the bridge was destroyed, and the bridge was wrecked and set on fire. The R.U. pom-pom ammunition on the bridge was ignited by the fire. No.1 boiler room flooded immediately, and No.2 boiler room was evacuated with the forward bulkhead split and leaking. The ship was immobilised, with all lighting lost, and soon was temporarily abandoned. After reboarding, however, the fire was brought under control and some top weight jettisoned. No.2 boiler room was half flooded, but No.3 boiler room was intact. The next morning steam was raised in No.3 boiler room, and 'Y' magazine and shell room were flooded to restore the freeboard forward. By the evening of that day, however, the boiler room and machinery had to be shut down as the feed water supply was expended. In the early morning of the 25th of October, the ship was taken in tow at 3 knots, but later owing to adverse weather this speed was reduced. By the evening of the 26th the weather had deteriorated so much that COSSACK again had to be abandoned. The next morning she was seen to be settling by the stern, but at mid morning the ship finally sank by the bow a main bulkhead having apparently given way due to heavy pounding. The final loss of COSSACK was attributed to the inferior weather conditions. REMARKS This incident emphasised the need to fit a second auxiliary diesel dynamo well separated from the existing one.
HERO 25th Oct., 1941 D.N.C.4B/R238	Three Near Miss 500 lb. delay action fuzed Bombs	4 weeks	HERO, while lying alongside LATONA which was on fire and sinking in the Mediterranean, was attacked by enemy aircraft. Three near misses occurred about 10 ft. from the starboard side, one abreast the after boiler room, one abreast No.3 gun, and one abaft the stern. The ship's side was buckled from 4 ft. below the upper deck to below the waterline over the after boiler room and engine room, and minor internal structural damage occurred in those compartments. Whipping caused corrugations, which girthed the ship just forward of the after superstructure. All high power was lost and the steering gear jammed, the ship steered by main engines. Minor damage occurred to No.3 boiler, which was shut down due to loss of feed water. Auxiliary machinery sustained minor damage, due to shock. Fighting Efficiency - Not seriously impaired. Speed was reduced to 10 knots for 2½ hours. All H.P. supply was lost, and manoeuvrability was impaired.

DESTROYERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAMERTON November, 1941	One Short 3.9 inch direct action fuzed Shell	Nil	LAMERTON was in action with an Italian submarine when a shell burst about 10 ft. above the forecastle deck forward of 'A' gun. The forecastle deck in vicinity of burst suffered minor damage. Minor damage also occurred to electrical circuits and the fore ring main was cut. Fighting Efficiency - Not impaired.
JACKAL 1st Dec., 1941 D.N.C.4B/R100	One Contact Torpedo dropped by aircraft	5 months	JACKAL, while moving at 25 knots 60 miles south of Crete, was struck by a torpedo just below the waterline on the port side abreast the steering compartment which was wrecked. Structure abaft the after superstructure was severely damaged and compartments were open to the sea. The steering gear was seriously damaged and put out of action with the rudder jammed at 24° to port. The steering motors were slightly damaged. All electrical gear abaft the after superstructure was destroyed. The main machinery was undamaged. Fighting Efficiency - Not seriously impaired. Vessel was steered by main engines at 14½ knots.
PUCKERIDGE 13th Dec., 1941 D.N.C.4B/R94	One Direct Hit 250 kgm direct action fuzed Bomb	7 months	PUCKERIDGE, while proceeding from Portsmouth to Liverpool, was attacked by enemy aircraft and sustained a direct hit on the upper deck just forward of 'Y' gun, to starboard of middle line, the bomb detonating on contact or just below the deck. The side plating, upper and lower decks and the internal structure from keel to upper deck, between the after gun mountings, was severely damaged. The superstructure aft of 'X' gun was wrecked. All compartments abaft the gearing room, except the steering compartment were flooded, including the after magazines and after group of oil fuel tanks. The ship settled by the stern with a heavy list to starboard and the quarter deck awash. The fire main aft was destroyed and a serious fire on the after mess deck was eventually brought under control by steaming astern and washing down aft. The main machinery was undamaged, but all electrical equipment in the damaged area was destroyed. 'Y' mounting and No.2 magazine were wrecked and the 4 inch R.U. ammunition on the upper deck was exploded by the fire. Fighting Efficiency - Seriously impaired. 'Y' gun was destroyed 'X' gun in local control and all the after ammunition was lost. The steering gear jammed at 20° to port, but vessel was steered by main engines and could steam at reduced speed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KIPLING 17th Dec., 1941	Four Near Miss 500 lbs. direct action fuzed Bombs One "Short" probably 12.6 inch Shell	Nil	KIPLING, during enemy attacks, suffered some near miss bombs 80 yards fine to port. The ship was undamaged except for slight splinter damage to the forward mounting. A "Short" burst 10 yards abreast the starboard torpedo tubes and the hull was pierced by splinters. Superficial damage to structure and fittings occurred on the starboard side. The main W/T aerials were shot away. Fighting Efficiency - Not impaired. The main W/T was temporarily out of action.
THRACIAN 17th Dec., 1941	Bomb and possibly Shell	Beached on territory afterwards occupied by the enemy	THRACIAN ran aground outside Hong Kong Harbour on the 14th December, but was refloated under her own power and docked next day. Repairs were not effected due to heavy shelling and bombing of the island, THRACIAN often being the main target. The ship was undocked with forward tanks and living accommodation flooded, then beached, dismantled, and armament used elsewhere.
STANLEY (ex U.S.A.) 19th Dec., 1941	One Contact Torpedo fired from submarine	Sunk	STANLEY while in the Eastern Atlantic was struck by a torpedo on the port side abreast the foremost boiler room. The ship listed heavily to starboard, broke in half and sank very shortly afterwards. REMARKS This incident emphasised the need for personal life saving equipment to be self inflating and that life saving apparatus such as rafts, floats etc. should break free of ship of their own volition if a vessel sinks.
KANDAHAR 19/20th Dec., 1941	One Contact Mine. One 21 inch torpedo fired by own forces	Sunk	KANDAHAR, while operating in the Central Mediterranean, struck a mine under the stern causing severe damage aft. Flooding occurred abaft the engine room and the propellers were lost. All lighting failed due to the flooding of the after main switchboard. Boiler rooms and auxiliary machinery in the engine room were undamaged and serviceable The fire control circuits were out of action and the forward 4.7 inch mountings were hand controlled. All topweight was jettisoned, but the stern settled until the whole of the after end abaft the funnel was under water. Due to the proximity of the Libyan coast and the adverse weather conditions it was not thought practicable to tow KANDAHAR and she was abandoned and sunk by torpedo from JAGUAR about 26 hours after the mining.

DESTROYERS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MAORI 28th Dec., 1941	Four Near Miss 550 lbs. direct action fuzed Bombs	6 weeks	MAORI was attacked by enemy aircraft and sustained near misses on the port side forward. Extensive splinter damage occurred to hull and fittings above the waterline from the stem to abreast 'A' mounting. Electric cables, oil fuel filling line, D.C.T. and forward mountings were damaged by splinters. Splinters ignited the cordite in port R.U. lockers of 'A' and 'B' guns. Fighting Efficiency - Impaired. Right hand gun of 'A' turret and D.C.T. were out of action.
ZULU 5th Jan., 1942	One Near Miss direct action fuzed Bomb	Nil	ZULU, while at Hamilton Wharf, Malta, sustained a near miss close to port quarter during an air raid. Superficial splinter damage to hull, superstructure, and fittings aft was caused. One large splinter pierced the hull making a hole 8" x 4" just below lower deck and broke up on frame 171. Some fragments perforated 165 bulkhead into 'X' shell room, but no damage was caused. Other fragments crossed 'Y' magazine, and one struck a bottle rack which caused the cordite of one 4.7" cartridge to ignite and burn. The after compartments were quickly filled with fumes. 'Y' magazine was partially flooded. Fighting Efficiency - Slightly impaired. 'Y' magazine was temporarily out of action. REMARKS This incident confirmed the results and conclusions of the 4.7" bottle rack venting trials carried out at H.M.S. EXCELLENT. C.A.F.O.1311/42 promulgated instructions to abolish bottle rack doors to facilitate venting.
VIMIERA 9th Jan., 1942	One Moored probably Magnetic Mine 10 fathoms	Sunk	VIMIERA, while in the Thames Estuary near East Spile Buoy, proceeding at 5 knots, sustained a heavy explosion under the forward boiler room. The ship broke in two just abaft the bridge. The forward portion rapidly flooded, drifted away to south westward and finally sank, while the after portion finally grounded and broke up.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KIMBERLEY 12th Jan., 1942 D.N.C.4B/R234	One Contact Torpedo fired from submarine	2 years	KIMBERLEY, while operating off Tobruk, was struck by a torpedo on the starboard side abaft No.3 mounting followed by a second explosion two seconds later, probably a depth charge primer. The stern structure was wrecked, the major portion being blown away while the upper deck was blown upwards and over ship's side starboard. The after end including No.3 magazine and shell room was open to the sea. A serious fire enveloped the after end immediately after the explosion, but it was eventually extinguished. Both tail shafts 'A' brackets and propellers were damaged and the rudder and steering gear were blown away. Electrical equipment aft was missing or damaged. The roller path of No.3 gun was distorted and the cordite and shell hoist motors were out of action. Fighting Efficiency - Seriously impaired. The vessel was immobilised due to damaged shafts and 'A' brackets. No.3 gun could be fired with reduced efficiency, but all the after ammunition was lost.
HESPERUS 15th Jan., 1942	Rammed submarine	$2\frac{1}{2}$ months	HESPERUS, while operating in the Mediterranean, struck an enemy submarine a glancing blow. The keel and garboard strake were torn for 25 ft. and the side framing abreast the engine room was distorted and leaking. The fore end flooded for 30 ft. and three starboard oil fuel tanks, one forward and two aft were flooded. Minor flooding occurred in the engine room from the sea and with oil fuel from the adjacent damaged tank. Fighting Efficiency - Seriously impaired. The endurance was reduced due to loss of oil fuel. Maximum speed was reduced due to flooding and the possibility of increased structural damage.
ISIS 17th Jan., 1942	Near Miss Bombs	Indeterminate	ISIS, during an air attack on Singapore, suffered minor damage from near miss bombs and required docking. The ship was under repair for bomb damage caused on 15th June, 1941.
MATABELE 17th Jan., 1942	Torpedo fired from submarine	Sunk	MATABELE, while escorting a convoy to Russia, was struck by a torpedo probably amidships. The ship blew up and sank in about 3 minutes and only two members of the crew survived.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
JUPITER 17th Jan., 1942	One Direct Hit 4 inch direct action fuzed Shell	Nil	JUPITER was in action with a Japanese submarine when a shell hit the cradle of the right gun of 'A' mounting. Severe damage occurred to 'A' mounting and gunnery equipment. Fighting Efficiency - Impaired. 'A' mounting was out of action.
GURKHA (2nd) Ex 'L' Class 17th Jan., 1942	One Contact Torpedo fired from submarine	Sunk	GURKHA, while proceeding off the Libyan Coast at 17¾ knots, was struck by a torpedo on the starboard side in the vicinity of the wardroom. A hole about 20 ft. to 30 ft. long was seen extending from 1 ft. above the waterline down to an undetermined depth. Extensive structural damage occurred abaft engine room and the after superstructure partially collapsed. Immediate flooding in vicinity of the explosion spread rapidly to most compartments abaft the engine room and the engine room flooded slowly. The firemain was fractured. A fire, fed by oil from the after tanks enveloped the after end and R.U. ammunition ignited and exploded. The after torpedo tubes jammed and were out of action. The forward guns were undamaged, but the after gun was out of action. The switchboard was wrecked and the electrical supply failed. GURKHA was immobilised listing heavily to port finally turning on her beam ends and sinking just over 1½ hours after the torpedo had struck. REMARKS This incident emphasised the need for this class of ship to have watertight hatch covers fitted to the hatches to the gearing room and engine room to prevent these compartments becoming flooded in the event of damage to the searchlight lobby.
LEGION 26th Jan., 1942	One Near Miss Bomb	Nil	LEGION, while in the Mediterranean, was attacked by enemy aircraft and a near miss caused minor structural damage. Fighting Efficiency - Slightly impaired. The asdic gear was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
THANET 27th Jan., 1942 D.N.C.4B/R177	Several in number Direct Hit direct action fuzed Shells	Sunk	THANET, while in action against Japanese destroyers, was hit by several shells one of which perforated the port side and exploded in the engine room. The ship was immobilised with steam pipes cut and a heavy list to starboard. All lighting failed and the after part was untenable due to escaping steam. THANET settled slowly and was abandoned whilst still being heavily engaged by the enemy, finally sinking 15 to 20 minutes after first being attacked.
BELMONT (ex U.S.A.) 31st Jan., 1942	Torpedo fired from submarine	Sunk	BELMONT, while operating in the Western Atlantic, was torpedoed and sunk by an enemy submarine. No further information available.
WESTCOTT 2nd Feb., 1942	Rammed submarine	2 months	WESTCOTT while operating in the Mediterranean rammed an enemy submarine. The port side plating forward for 65 ft. was set in a maximum of 12 inches above and below the lower deck over a depth of 5 ft. Minor leaks occurred in forward compartments and No.1 oil fuel tank. Fighting Efficiency - Slightly impaired.
FARNDALE 9th Feb., 1942 D.N.C.4B/R109	One Direct Hit 250 kgm delay action fuzed Bomb	6 months including refit	FARNDALE, while moving off the Libyan coast, south of Crete, at 18 knots was attacked by enemy aircraft. A bomb hit the fore side of bridge, perforated the forecastle and upper decks, passed out of the ship's side port and burst under water. The side plating port, abreast the forward boiler room was severely buckled and set in, and minor damage occurred to internal structure and the starboard side plating. The forward boiler room flooded, while slow flooding of the after boiler room forward oil fuel tanks and L.P. room took place. Minor flooding occurred in the engine room. Fighting Efficiency - Severely impaired. The ship was immobilised due to flooding of boiler rooms. Guns could be fired in local control only due to the flooding of L.P. room.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MAORI 12th Feb., 1942 D.N.C.4B/R119	One Direct Hit size unknown delay action fuzed Bomb	Sunk	MAORI, during an enemy air raid, while at No.3 buoy, Grand Harbour, Malta, was hit by a bomb on the upper deck. The bomb pierced the deck and exploded in the gearing room. The gearing room was wrecked and its bulkheads destroyed, while the forward bulkhead of the engine room was seriously damaged. Over the engine and gearing rooms the upper deck was set up and split. The after boiler room, engine room, gearing room and after oil fuel tanks were flooded. A serious fire was started in the gearing room by lubricating oil and being fed by oil from the damaged fuel tanks, rapidly spread to the engine room and enveloped the after end of the ship. R.U. ammunition exploded. The main switchboard was destroyed. About 45 minutes after the bomb detonated another explosion occurred, thought to be the warhead magazine containing 32 depth charges. The fore end of the after superstructure collapsed into the gearing room. The fore part of the vessel remained afloat for 48 hours.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WORCESTER 12th Feb., 1942 D.N.C.4B/R93	Six Direct Hit One "Short" 5.9 inch direct action fuzed Shells	14 weeks including refit	WORCESTER, while in action with SCHARNHORST or GNEISNAU 20 miles off Rotterdam at 30 knots, sustained 6 direct hits and 1 short from shells. Hit No.1 on the starboard deck edge, abreast the 12 pounder which was put out of action. The deck and sheer strake was holed and minor splinter damage occurred. Hit No.2 on the oerlikon R.U. locker, forecastle deck, starboard. The ammunition was ignited and splinters penetrated the W/T T.S. and surrounding compartments. Hit No.3 in forward boiler room, just above the waterline starboard, bursting in the peace tank. The ship's side was holed and bulged abreast the boiler room, the upper deck damaged, peace tank destroyed and the boiler room flooded. Hit No.4 in the after boiler room above the waterline starboard. A hole 3½ ft. by 1 ft. extended to the upper deck and the peace tank was badly damaged. Splinters pierced the forward bulkhead and caused partial controlled flooding of the forward boiler room. Hit No.5 on the port side, near stem, burst in paint room. The ship's side starboard, forecastle and upper decks were bulged and pierced by splinters. The stem to 11 bulkhead was flooded. Hit No.6 at base of foremost funnel, port side. It made a large hole in the funnel casing and caused splinter damage to the bridge structure. Short was on the starboard side abreast 'X' gun causing splinter damage to wardroom and surrounding compartments which flooded. Fighting Efficiency The vessel was temporarily immobilised due to loss of feed water and the forward boiler room was flooded. 'A' gun was in action with R.U. ammunition only and other main armament was out of action due to casualties. The after magazine and shell room was flooded. The W/T was out of action. WORCESTER steamed 80 miles at 6½ knots on the after boiler room. REMARKS The seacock for admitting salt water into the feed tanks was too small and supply had to be supplemented by hose.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ELECTRA 27th Feb., 1942	Number unknown Direct Hit Shells	Sunk	ELECTRA, while in action with Japanese landing forces off Sourabaya, received a direct hit from a shell in the port side of the after boiler room. All steam was immediately lost. The telemotor leads to steering gear and all bridge communications failed. The vessel listed slightly to port and preparations were made to abandon ship. ELECTRA engaged enemy destroyers with all guns firing in local control, and was repeatedly hit until only 'Y' gun remained in action. Extensive fires started forward and the list to port increased. The ship was abandoned and sank slowly by the bow about ¾ of an hour after the first hit.
JUPITER 27/28th Feb., 1942	One Contact Torpedo	Sunk	JUPITER, while in action with Japanese landing forces off Sourabaya, moving at 30 knots, was struck by a torpedo on the starboard side abreast the bulkhead to the engine room and after boiler room. The explosion left the starboard side with a rectangular area 20 ft. long, 8 ft. wide, with its upper edge about 2 ft. from the upper deck forced in to form a central hole about 8 ft. by 6 ft. The upper deck was lifted and buckled in the vicinity of the torpedo tubes which had jumped from the roller paths. The engine room and after boiler room flooded immediately and the forward boiler room flooded slowly. All lighting failed and the ship was immobilised but the secondary lighting functioned correctly. JUPITER was abandoned and sank 4 hours after the torpedo hit.
ENCOUNTER 1st March, 1942	(i) Shell "Shorts" (ii) Scuttled	Sunk	ENCOUNTER was in action with Japanese cruisers and destroyers in the Java Sea when several shorts burst close to the ship. The forced lubrication system was put out of action by a fractured suction pipe, probably by a splinter. Due to overheated bearings and C.S.A. smoke which had been drawn down the ventilation the engine room became untenable. The ship was immobilised with only 75% of the armament in action. ENCOUNTER was scuttled and sunk by her own personnel.
STRONGHOLD 2nd March, 1942	(i) Several Direct Hit Shells (ii) Probably a Torpedo fired from cruiser or destroyer	Sunk	STRONGHOLD when engaged in action with Japanese cruisers and destroyers sustained direct shell hits on the after end in galley flat, on the forward torpedo tubes and at the fore end of the bridge. Speed was appreciably reduced due to hull damage. Further shell hits caused considerable internal damage. The engine room was on fire and was abandoned together with the boiler rooms. A direct hit on the pom pom set fire to warheads in the torpedo tubes. The ship was immobilised and abandoned. Within 5 minutes STRONGHOLD was torpedoed or blew up, and sank immediately.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITSHED 5th March, 1942 D.N.C.4B/R96	One Non-Contact Mine 17 fathoms	6 months including refit	WHITSHED was proceeding at 16 knots off Yarmouth when an explosion occurred in the vicinity of the gland compartment. The hull plating corrugated abreast the starboard after fuel tanks, and bulkheads abaft the after boiler room were slightly buckled on the starboard side. Slow flooding of the gland compartment, warhead magazine and after oil fuel tanks took place, and minor controlled flooding occurred in the engine room. The inner sliding foot of the port H.P. and the casing of the starboard H.P. turbine were fractured and the keeps to the sliding feet of the L.P. turbines were distorted. Auxiliary machinery and castings were damaged by shock. Both dynamos failed due to shock, but the port dynamo was restarted and lighting restored. Fighting Efficiency - Severely impaired. The ship was temporarily immobilised but was later able to proceed at 5 knots on the port engine. The main W/T and gyro was out of action due to shock. REMARKS This incident emphasised the need for:- 1. The supply of Oldham lamps to be increased. 2. The supply of "BIJOU" torch batteries to be increased and a more robust type of torch supplied. 3. A separate steam ejector to be fitted in the gland compartment to facilitate pumping in an emergency. This is the only main compartment not so fitted.
FERNIE 14th March, 1942	Number unknown "Shorts" Shell	1 week	FERNIE, while in the English Channel, suffered minor damage by splinters from shorts. Fighting Efficiency - Not impaired.
BLENCATHRA 14th March, 1942	Number unknown "Shorts" Shell	3 weeks	BLENCATHRA, while in the English Channel, suffered minor damage by splinters from shorts. Fighting Efficiency - Not impaired.
WINDSOR 14th March, 1942	One Direct Hit 4 inch direct action fuzed Shell	2 months	WINDSOR sustained a direct hit on the starboard after motor boat and suffered extensive but minor splinter damage. The electrical circuits to the torpedo control position were pierced by splinters. Fighting Efficiency - Not impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VORTIGERN 15th March, 1942	Torpedo fired by E-boat	Sunk	VORTIGERN, while operating in the North Sea off Cromer, was torpedoed and sunk by E-boats. No further information available.
HEYTHROP 20th March, 1942 D.N.C.4B/R201	One Contact Torpedo fired from submarine	Sunk	HEYTHROP, while on an A/S sweep in the Mediterranean moving at 14 knots, was struck by a torpedo in the after mess deck, port side about 60 ft. from the stern. An immediate 10° list to starboard took place and the ship was almost severed at No.3 mounting with the after end only attached by the starboard side plating. Immediate flooding of most compartments abaft the gearing room occurred but flooding in the gearing room was controlled. The main suction abaft the engine room was out of action. No.3 gun was blown overboard and No.2 gun was badly damaged and out of action. A minor fire occurred in the canteen. 3 hours after the torpedo struck an explosion occurred in the after boiler due to the loss of feed water and the boiler was shut down. The ship was taken in tow at 5 knots. Shortly afterwards HEYTHROP had trim by the stern with a heavy list to starboard, and 2 hours after the boiler explosion the tow was slipped. A short while later the ship was abandoned with a 50° list and she finally turned on the starboard side and sank by the stern.
KINGSTON 22nd March, 1942	One Direct Hit 15 inch direct action fuzed Shell	Indeterminate See Pages 193 196 and 197	KINGSTON, while engaging an enemy force of a battleship and cruisers in the Mediterranean, sustained a direct hit from a shell. The pom-pom and oerlikon structures and the upper deck in the vicinity of the burst were severely damaged. A fire was started in the engine room but it was later extinguished. Fighting Efficiency - Seriously impaired. The vessel was able to steam with one boiler at 16 knots.
LIVELY 22nd March, 1942	One "Short" 15 inch direct action fuzed Shell	Nil	LIVELY was engaging an enemy battleship in the Mediterranean when a salvo of 15 inch shells burst close to the port side and the base plate of one holed the side plating forward near the waterline. Controlled flooding took place in two forward mess decks. Fighting Efficiency - Slightly impaired. Maximum speed was reduced to 20 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HAVOCK 22nd March, 1942	Number unknown "Short" 15 inch Shells	Indeterminate See Page 195	HAVOCK, while engaging an enemy battleship in the Mediterranean, suffered extensive splinter damage abreast the machinery spaces from shorts. All boiler rooms and the engine room were holed and partially flooded. The after boiler room was out of action due to damaged boilers. Fighting Efficiency - Seriously impaired. The speed was reduced to 15 knots.
HAVOCK 23rd March, 1942	Bomb	Indeterminate See Page 195	HAVOCK received further damage during an air raid on Malta. No details available.
AVONVALE 23rd March, 1942	Number unknown size and type unknown Bombs	14 weeks including collision repairs	AVONVALE, while in the Mediterranean, was attacked by enemy aircraft. Serious damage impaired the structural strength of the ship. Collision damage was sustained forward. No further information available.
KINGSTON 23rd March, 1942	Number unknown size and type unknown Bombs	Indeterminate See Pages 196 and 197	KINGSTON was damaged during an air raid on Malta whilst undergoing temporary repairs to damage received on 22nd March, 1942. No details available.
LEGION 23rd March, 1942	One Near Miss 500 kgm direct action fuzed Bomb	Indeterminate See Page 194	LEGION, while operating 10 miles off Malta, was attacked by enemy aircraft and suffered a near miss amidships on the starboard side. The ship's side abreast the engine room was severely damaged and the forward bulkhead to the engine room was split. Controlled flooding occurred in the engine and after boiler room. Damage was done to machinery in the engine room, gearing room and after boiler room. The starboard H.P. turbine feet were fractured. Fighting Efficiency - Seriously impaired. The vessel was able to proceed at 20 knots. Flooding was only just within the capacity of the pumps.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SOUTHWOLD 24th March, 1942	(i) One Non-Contact Mine (ii) Number unknown Near Miss delay action fuzed Bombs	Sunk	SOUTHWOLD was aiding BRECONSHIRE in the Mediterranean when a mine exploded under the engine room. The hull was severely damaged, engine and gearing rooms wrecked, and the upper deck was split over the engine room. Slow flooding of engine room from gearing room through bulkhead shaft glands, spread to after boiler room through a large fracture in the bulkhead. Both boiler rooms were shut down and the ship listed slightly to starboard. All lighting was temporarily lost but it was later restored with diesel generators. Whilst in tow, the side plating port and starboard in the vicinity of the engine room split to the upper deck. During the tow an enemy aircraft attacked SOUTHWOLD and near miss bombs possibly caused further damage and flooding. SOUTHWOLD settled slowly with considerable sag and an increased list to starboard and was finally abandoned, afterwards sinking.
LEGION 26th March, 1942	Two (possibly three) Direct Hit One Near Miss Bombs	Sunk	LEGION was at Boiler House Wharf Malta, in hand for bomb damage repairs sustained on 23rd March, 1942, when an air raid developed. The direct hits occurred simultaneously on the forecastle and 'B' gun deck and exploded about lower deck level. The near miss fell on the jetty to port, close alongside. In the vicinity of the hits the fore end was split wide open. LEGION settled by the bow, turned on port side and sank in less than five minutes.
JAGUAR 26th March, 1942	Two Contact Torpedoes fired from submarine	Sunk	JAGUAR, while escorting a convoy near Tobruk at 15 knots, was struck by two torpedoes. The first torpedo struck between the funnel and the bridge on the starboard side followed almost immediately by another between the funnel and the pom-pom. The ship listed heavily to starboard and broke in two. A serious fire started in the vicinity of the galley and rapidly spread to the fore mess decks and entire bridge structure. The fore part sank within one minute, and the after end in about three minutes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ECLIPSE 29th March, 1942 D.N.C.4B/R255	Three Direct Hit Two "Short" probably 5.9 inch direct action fuzed Shells	5 weeks	ECLIPSE, while north of the Scandinavian Peninsula, was engaged in action with three German NARVIK class destroyers. Two Direct Hits occurred on the upper deck, one bursting in the lobby at the fore end of the after superstructure and another on the upper deck outside, both to starboard. Holes made in the deck were $3\frac{1}{2}$ ft. by $2\frac{1}{2}$ ft. and 2 ft. by 2 ft. Extensive but not serious damage was done by splinters which pierced superstructure and the upper and lower decks. Minor fires started aft, and some 4.7 inch R.U. charges were ignited by splinters. H.P. and L.P. circuits suffered minor damage. One Direct Hit on the aft side of the forward funnel perforated both casings but did not explode. Two Shorts burst on the waterline under the starboard flare and splinters pierced the ship's side above the waterline and upper and lower decks. Minor buckling of the side plating and internal structure, starboard, occurred. Fighting Efficiency - Slightly impaired. A reduction of speed was made to prevent flooding forward. The ammunition supply to 'X' gun was temporarily lost due to damage and casualties to supply parties.
BEAUFORT 2nd April, 1942	One Near Miss 1,000 lbs. delay action fuzed Two possibly three Near Miss 150 lbs. direct action fuzed Bombs	Nil	BEAUFORT, while operating in the Mediterranean, and moving at 20 knots was attacked by enemy aircraft. A near miss 1,000 lbs. bomb fell 12 ft. to starboard and exploded underwater. Two or three 150 lbs. bombs fell about 10 ft. to port abreast the gearing room, and burst on impact. The outer bottom plating starboard abreast the boiler rooms was set in 6 inches. Minor flooding occurred through strained rivets and laps and butts of plating. Fighting Efficiency - Not impaired.
HAVOCK 2nd April, 1942	Near Miss Bombs	Indeterminate undergoing temporary repairs. See Page 193	HAVOCK and PENELOPE during a heavy air raid on Malta Dockyard were the main targets. HAVOCK received minor damage due to many near misses. Fighting Efficiency - Not impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LANCE 4th April, 1942	Two Direct Hit size and type unknown Bombs	Indeterminate See Page 197	LANCE, during an air raid on Malta, received two direct hits one of which did not explode. The extent of damage is not known but vessel was reported as being probably seaworthy. Note:- See damage received on 5th April, 1942.
LANCE 5th April, 1942	One Near Miss size and type unknown Bomb	Indeterminate See Page 197	LANCE was attacked during an air raid on Malta Dockyard. The ship's side was blown in by a bomb which exploded in No.2 dock. LANCE was blown off the blocks and was partially submerged in dock.
GALLANT 5th April, 1942	Near Miss Bombs	Total Loss	GALLANT, while at Malta Dockyard undergoing repairs to the mine damage of 10th January, 1941, was attacked during an air raid. Several near misses caused extensive splinter damage. The ship flooded to the waterline and was beached at Pinto Wharf and abandoned until conditions improved. Guns and important machinery were landed.
TENEDOS 5th April, 1942	Two Direct Hit 250 lb. Two Near Miss direct or short delay action fuzed Bombs	Sunk	TENEDOS was at anchor with stern secured to wharf in Colombo Harbour when an enemy air attack occurred. Two direct hits aft, a near miss astern, and another abreast the foremost funnel were sustained. The severe damage aft caused the stern to sink rapidly.
KINGSTON 5th April, 1942	Near Miss Bombs	Indeterminate See Pages 192 193 and 197	KINGSTON, while at Malta Dockyard undergoing temporary repairs to damage received on 22nd March, 1942, was further damaged during an air raid. Many near misses caused splinter damage to the hull and upperworks. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VAMPIRE (H.M.A.S.) 9th April, 1942	Three (at least) Direct Hit Five (at least) Near Miss size and type unknown Bombs	Sunk	VAMPIRE, while south of Trincomalee moving at 23 knots, was attacked by enemy aircraft. Near Misses fell abreast 'B' gun, port and starboard and 2 ft. abaft stern followed by more near misses off the port and starboard beam. The mounting of 'A' gun was bent and 'B' gun could not train. A direct hit occurred in the after boiler room and main and auxiliary steam lines were cut. Hits followed in rapid succession. The ship sagged badly with a heavy list to port and her speed was only one knot. Orders were given to abandon ship and whilst this was being carried out the vessel was continually bombed. A direct hit occurred on the forward end of the torpedo tubes, but the warheads did not explode. The ship broke in half and the fore end sank. The after magazine then exploded and the stern sank 20 minutes after the commencement of the bombing. About two minutes later a heavy underwater explosion occurred, possibly from the depth charges.
LANCE 9th April, 1942	Number unknown Near Miss size and type unknown Bombs	Sunk	LANCE, while under repair in No.2 dock at Malta Dockyard, sustained further damage during an air raid. The ship was nearly upright in dock with stern submerged but with topsides amidships and forecastle above waterline. Guns and fittings were stripped and removed.
KINGSTON 11th April, 1942	Bomb	Sunk	KINGSTON while under repair in No.4 dock at Malta Dockyard received further damage during an air raid. The ship broke in two and turned on her beam ends. The dock was seriously damaged and flooded and it was proposed that when repaired it should be pumped dry and KINGSTON broken up.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUORN 20th April,1942 D.N.C.4B/R103	One Moored Contact Type 'R' Charge 90 lb. Mine (German)	14 months	QUORN, while steaming at 20 knots in the North Sea, struck a mine on the port side of the forward boiler room at the fore end at about bilge keel level. A hole 9 ft. by 15 ft. was made in the side of the ship and the forward bulkhead of the forward boiler room below the lower deck was severely damaged on the port side. Immediate flooding occurred of the forward boiler room and compartments in the vicinity. Minor flooding took place on the lower deck. No.1 boiler moved to starboard, and the main and auxiliary steam pipes were damaged. The H.P. and L.P. failed, and the port diesel dynamo was shattered. Fighting Efficiency - Severely impaired. No.1 boiler was out of action and No.2 boiler was shut down temporarily. The vessel was immobilised and taken in tow. Due to loss of power the guns could only be fired in local control. REMARKS This incident emphasised the necessity for the feed systems to No.1 and No.2 boilers to be isolated. This would have allowed QUORN to proceed under her own power.
COTSWOLD 20th April,1942 D.N.C.4B/R104	One Moored Magnetic charge 475 lb. Mine (German) 16 fathoms	11 months	COTSWOLD, while proceeding at 15½ knots off Orford Ness, sustained an explosion under the stabiliser compartment. The bottom plating was fractured at the forward bulkhead of Nos.1 and 2 oil fuel tanks from 11 ft. below the forecastle deck port to a similar position starboard. The keel in this vicinity was blown up a maximum of 28 inches over a length of 50 ft. and the bottom bulged in on the starboard side. The fore and aft bulkheads of Nos.1 and 2 oil fuel tanks were severely damaged. Both the upper and forecastle decks were buckled and the lower deck fractured. The hull was corrugated aft due to whipping. No.1 magazine and No.1 boiler room were completely flooded and spaces between these compartments were flooded up to the waterline. A minor oil fuel fire occurred on the upper deck. All lighting failed due to the loss of steam. No.2 boiler was shut down due to loss of feed water and minor damage occurred to No.1 boiler and auxiliaries. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow. Due to risk of further damage if fired, the forward guns were out of action and ammunition had been lost by the flooding of the forward magazine. The after guns could have been fired in local control only.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BEAGLE 1st May, 1942	"Shorts" Shell	Nil	BEAGLE, while in action with German destroyers, sustained superficial damage from splinters. Fighting Efficiency - Not impaired.
BULLDOG 1st May, 1942	"Shorts" Shell	Nil	BULLDOG, while in action with German destroyers, sustained damage to the hull and superstructure above the waterline caused by splinters. Some tubes to No.1 and No.3 boilers were pierced by splinters. Fighting Efficiency - Slightly impaired. Type 271 radar was out of action.
AMAZON 1st May, 1942	Two Direct Hit several "Shorts" size and type unknown Shells	10 weeks	AMAZON, during an engagement with German destroyers, sustained a direct hit on the wheelhouse and one on the searchlight platform. Extensive splinter damage was caused by these hits and by several shorts. The ship's side was pierced in the engine room and boiler room. Fighting Efficiency - Seriously impaired. The telegraphs, after steering, 'B' gun and starboard pom-pom were out of action.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORESIGHT 2nd May, 1942 D.N.C.4B/R247	Four Direct Hit 5.1 inch direct action fuzed Shells	2 months	FORESIGHT, while proceeding at 28 knots engaging German destroyers off North Russia, sustained four direct hits with shells. Hit No.1 was aft in the engineer's cabin starboard, about 6 ft. above the waterline. The ammunition hoist was wrecked and minor splinter damage occurred. The wardroom flat flooded through the shell hole, and the shell room through splinter holes. Minor splinter damage occurred to electric leads. Hit No.2 was in the torpedomen's mess starboard. Minor structural but extensive splinter damage occurred. The L.P. switchboard room was wrecked and the electric circuits between T.S. and the after guns were cut. No.3 oil fuel tank and the suction system to No.1 boiler were flooded. Hit No.3 was on the upper deck starboard over No.3 boiler room. Minor structural but serious splinter damage occurred. The main steam pipes, No.3 boiler, firemain and the Downton suction were pierced. All steam and electrical power was lost. Hit No.4 on the R.D.F. office, port, burst in the boatswain's R.U. store causing minor structural and splinter damage. Fighting Efficiency - Impaired. The ship was temporarily immobilised with a 12° list to starboard. All guns were in local control although 'X' gun was temporarily out of action due to loss of ammunition. The starboard engine wasout of action and the ship proceeded at 15 knots on No.1 boiler and port engine. REMARKS This incident emphasised the need for:- 1. Each oil fuel pump to be fitted with a sluice valve and hose connection to enable a boiler to be fed by a fuel pump in another boiler room whilst using its own pumps for pumping oil tanks on its own end of the ship. 2. The Downton suction system to be as low down in the ship as possible for protection and bulkhead valves to be fitted. 3. A longer lead of suction hose for portable pump and stronger armour protection for suction hoses necessary. 4. A second 70 ton electrical portable pump to be supplied.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORESTER 2nd May, 1942 D.N.C.4B/R247	Three Direct Hit several "Shorts" 5.1 inch direct action fuzed Shells	19 weeks	FORESTER, while engaging German destroyers at 30 knots off North Russia, came under shell fire. Hit No.1 on the port side of the forward boiler room, pierced a steam drum, the bulkhead between boiler rooms and passed out through the ship's side without exploding. Hit No.2 seriously damaged 'B' gun. Hit No.3 shattered the breech of 'X' gun. Severe splinter damage occurred to the ship's side and superstructure from the hits and the many shorts. Multicore cables to 'A' and 'B' guns, T.S. and after group and other electric circuits were cut. The firemain and oil fuel filling line were punctured. Fighting Efficiency - Severely impaired. The vessel was temporarily immobilised, but was later able to proceed under her own power at slow speed. The forward boiler room, 'B' and 'X' mountings and R.D.F. were out of action.
ALBRIGHTON 5th May, 1942	Number unknown "Short" size and type unknown Shells	Nil	ALBRIGHTON, while proceeding off Cap D'Ailly, France, engaged some light enemy forces. Splinters from shorts caused superficial damage. Fighting Efficiency - Not impaired.
KIPLING 11th May, 1942	One Direct Hit One Near Miss size unknown delay action fuzed Bomb	Sunk	KIPLING, while operating in the Mediterranean, was attacked by enemy aircraft. A direct hit was sustained at the starboard after end of the engine room and a near miss abreast the port side. The ship's side plating was probably damaged down to the keel, and, after the flooding broke her back, ship was held together by the upper deck. Immediate flooding took place in the engine room, gearing room, after oil fuel tanks and after boiler room, and the ship took a heavy list to port. The torpedoes and tubes were thrown overboard by the force of the explosion. Within ten minutes the ship sank by the stern.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIVELY 11th May, 1942	One Direct Hit size unknown delay action fuzed several Near Miss Bombs	Sunk	LIVELY, while operating in the Mediterranean, was attacked by enemy aircraft. A direct hit was sustained on 'B' gun deck just abaft the gun and it exploded at lower deck level. Several near misses occurred abreast 'A' mounting. The vessel immediately settled by the bows and listed heavily to starboard. A heavy explosion occurred forward and the vessel sank stern first within $3\frac{1}{2}$ minutes of the first attack.
JACKAL 11/12th May, 1942	One Direct Hit size unknown delay action fuzed several Near Miss Bombs One Torpedo 21 inch fired by our own forces	Sunk	JACKAL, while in the Mediterranean proceeding at 30 knots, was attacked by enemy aircraft. A bomb pierced the upper deck over the after boiler room, passed through the boiler and out through the bottom to explode beneath the keel. Two near misses off the port side caused minor damage. Immediate flooding of both boiler rooms and the engine room occurred and the gearing room flooded slowly. All steam and electrical power was lost. An oil fuel fire started in the forward boiler room about 20 minutes after the attack and spread rapidly. Further flooding took place aft probably due to the damage caused by the near misses. The ship settled by the stern with a 6^{o} list to starboard. JACKAL was finally abandoned and sunk by a torpedo from JERVIS about $8\frac{3}{4}$ hours after being hit by the bomb.
WOLVERINE 16th May, 1942	One Near Miss approximately 250 lbs. delay action fuzed Bomb	2 weeks	WOLVERINE, while in Plymouth Sound during an air raid, sustained a near miss about 15 yards to starboard abreast the engine room. No structural damage was sustained. A minor oil fuel leak occurred in the bulkhead of the warhead magazine. The inboard sliding foot of the starboard H.P. turbine was cracked and minor damage occurred to auxiliary machinery. Fighting Efficiency - Slightly impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MARTIN 27th May, 1942	One Near Miss size unknown delay action fuzed Bomb	4 days	MARTIN, while off North Russia at 17 knots, was attacked by enemy aircraft. A near miss fell 15 yards to port abreast the forward bulkhead of the engine room. No structural damage was sustained. The bedplates of No.4 port generator and the diesel oil transfer pump, both cast iron, were fractured, and the port air compressor was out of action due to shock. Shock caused the temporary dislocation of the port side electrical installations. Fighting Efficiency - Not impaired. REMARKS This incident emphasised the necessity for:- 1. The turbo generators to have more holding down bolts and the bedplate to be completely supported on wooden blocks. 2. The cast iron body of the diesel transfer and similar small pumps to be replaced by gunmetal.
JANUS 5th June, 1942	Number unknown Near Miss size and type unknown Bombs	1 month	JANUS, while operating in the Mediterranean, was attacked by enemy aircraft and near miss bombs caused damage to machinery. Fighting Efficiency - Effect not known.
GROVE 12th June, 1942	Torpedo fired from submarine	Sunk	GROVE was torpedoed and sunk whilst operating off the Libyan Coast. No further information available.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BEDOUIN 15th June, 1942	Twelve Direct Hit size and type unknown Shells One Contact Torpedo dropped by aircraft	Sunk	BEDOUIN during an action with an enemy force of two cruisers and four destroyers near Pantelleria was hit by shellfire. Hit No.1 exploded on the stemhead, tearing away about 20 square ft. of plating. Hit No.2 entered the after lower messdeck causing a hole about 9 square ft. above the waterline with considerable perforation of the hull and decks in the vicinity. This shell also wrecked the A/S cabinet. Hit No.3 exploded in No.1 boiler room fans and fractured the auxiliary superheat steam pipe in the boiler room. Hit No.4 carried away the mast just above the H.A. director. Hit No.5 hit the bridge port side and wrecked the director. Hit No.6 exploded in the radar hut, port side of flag deck. Hit No.7 entered the forward cabin flat tearing a large hole in the starboard side above the waterline. Hit No.8 exploded in the gearing room perforating the auxiliary exhaust line. It also wrecked the casing for the port main gearing, spraying the room with oil causing a serious fire, and the gearing room ventilation was put out of action. Hit No.9 entered the C.P.O's mess but failed to explode. Hit No.10 exploded on 'X' gun deck igniting ready use cordite. Hit No.11 entered the after cabin flat, exploded and made a hole about 9 sq. ft. on the waterline. Hit No.12 exploded in the engine room and put the starboard engine out of action. The ship was immobilised and taken in tow by PARTRIDGE but the tow was later slipped when the enemy reappeared. Shortly afterwards an enemy plane attacked the ship with a torpedo which struck on the bulkhead between the engine room and gearing room. The ship sank a short time later.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AIREDALE 15th June, 1942 D.N.C.4B/R209	One possibly more Direct Hit Four Near Miss size and type unknown Bombs Torpedo and gunfire of our own forces	Sunk	AIREDALE, while escorting a convoy west of Crete, was attacked by enemy aircraft. Two heavy near miss bombs one to port and one to starboard, and a direct hit by a heavy bomb and possibly several smaller ones occurred in the vicinity of the after mounting. Two further near misses fell a few seconds later. A heavy explosion which occurred aft was thought to be the 4 inch magazine or depth charges blowing up. Structure abaft the searchlight platform was wrecked. A serious fire was started in the after boiler room. The ship settled by the stern with a list to port and 20 minutes after the attack, was abandoned and sunk by our own forces.
HASTY 15th June, 1942 D.N.C.4B/R208	One Contact Torpedo fired by submarine. Sunk by torpedo fired from our own forces	Sunk	HASTY was operating in the destroyer screen to NEWCASTLE and ARETHUSA west of Crete, and proceeding at 25 knots when she was struck by a torpedo on the port side, forward of 'A' gun. Structure forward of 'A' gun was blown away. Immediate flooding of the fore end occurred and both boiler rooms leaked. HASTY was abandoned and sunk by torpedo from HOTSPUR.
PARTRIDGE 15th June, 1942 D.N.C.4B/R116	Three Direct Hit direct action fuzed Shells	2 months	PARTRIDGE while proceeding at 30 knots in action with enemy cruisers and destroyers in the Mediterranean sustained three shell hits. Hit No.1 occurred on the lip of the forward torpedo tubes which were trained to port and the warheads caught fire. The air vessels of two torpedoes burst, throwing the burning warheads overboard to port and forcing the remaining part of the torpedoes through the rear doors of the tubes and over the starboard side. A 12 inch hole was made in the upper deck and the main steam pipe was damaged. The port turbo generator was damaged by fire. Hit No.2 on the cordage locker caused minor splinter damage. Hit No.3 on the starboard Oerlikon platform caused minor damage. Fighting Efficiency - Impaired. The ship was temporarily immobilised but was later able to proceed at 20 knots on one engine. The forward torpedo tubes were damaged. REMARKS This incident confirmed the efficiency of duplex warhead safety arrangements - there was no detonation.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NESTOR (H.M.A.S.) 15/16th June, 1942 D.N.C.4B/R173	Two Near Miss size unknown delay action fuzed Bombs Sunk by own forces	Sunk	NESTOR, while escorting a convoy in the Mediterranean, was attacked by enemy aircraft. Two near misses were sustained, one 50 ft. to starboard abreast the bridge and another close alongside to port. The vessel was severely shaken. The hull was extensively distorted and holed below the waterline on the port side of the forward boiler room. There was a large hole above the waterline about 5 ft. by $2\frac{1}{2}$ ft. and 2 ft. forward of the bulkhead between the boiler rooms. Starboard side plating was buckled but not holed. Both boiler rooms flooded. Oil from the forward fuel tanks started a fire in the forward boiler room, but this was later controlled. All power was lost. The ship settled by the bows with a 10° list to port. Top weight was jettisoned. NESTOR was taken in tow but approximately 11 hours after the attack the ship was finally abandoned and sunk by our own forces. REMARKS This incident emphasised the need for:- 1. Dynamos in destroyers to be separated. 2. Supply of hand torches to be increased. 3. A hand pump to be fitted in the gearing room for pumping lubricating oil when shafts are trailing.
BADSWORTH 16th June, 1942 D.N.C.4B/R174	One Contact probably type Q charge 80 lb. Mine	5 months	BADSWORTH, while entering Grand Harbour Malta at 10 knots, struck a mine on the starboard side abreast the forward mounting. A hole 12 ft. by 15 ft. was made in the side plating. Most compartments forward of the boiler room were flooded. Minor damage occurred to auxiliary machinery. Fighting Efficiency - Seriously impaired. The forward 4 inch mounting was out of action due to upper deck damage and No.1 magazine was flooded. Gyro compass, A/S and W/T equipment were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MATCHLESS 16th June, 1942 D.N.C.4B/R159	One Contact probably Type Q charge 80 lb. Mine	19 weeks	MATCHLESS, while entering Grand Harbour at 5 knots, was struck by a mine on the starboard side between the two forward mountings. A hole 10 ft. by 7 ft. was blown in the ship's side and the refrigerating machinery was destroyed. Most compartments in the vicinity were flooded. Fighting Efficiency - Seriously impaired. Maximum speed was 8 knots. The forward turrets were out of action due to loss of power and ammunition. The A/S was temporarily out of action.
WILD SWAN 17th June, 1942	Seven Near Miss size unknown delay action fuzed Bombs	Sunk	WILD SWAN, while homeward bound after convoy duty, was passing through a Spanish fishing fleet when she was attacked by enemy aircraft. Four near misses burst under water abreast the after boiler room, the force of the explosions breaking the ship's back, and bringing down the mast. The engine room and after boiler room were immediately flooded. The wheel was jammed hard to starboard causing the ship to ram a Spanish trawler. Forty minutes after the attack had commenced when the ship was listing 12 to port, a further three near misses fell close to the starboard quarter. WILD SWAN was now slowly breaking in two and was abandoned shortly afterwards, finally sinking.
ITHURIEL (ex Turkish) 17th June, 1942	One Near Miss size unknown delay action fuzed Bomb	1 week	ITHURIEL, while en route from Malta to Gibraltar, was attacked by enemy aircraft and sustained a near miss starboard abreast the after boiler room. Local buckling of the side plating took place. An oil fuel leak occurred through the gland of the main thrust and plummer block. Fighting Efficiency - Not impaired.
BLANKNEY 17th June, 1942	Number unknown Near Miss size and type unknown Bombs	Uncertain	BLANKNEY while en route from Malta to Gibraltar was attacked by enemy aircraft. Damage was caused by near miss bombs but details are not available. Fighting Efficiency - Impaired.
BLENCATHRA 18th July, 1942	One Near Miss 500 lb. direct action fuzed Bomb	3 days	BLENCATHRA, while operating at 12 knots in the English Channel, was attacked by enemy aircraft and a near miss bomb fell 30 ft. off the starboard quarter. Severe shock caused distortion of keeps and holding down bolts of the starboard turbine. The main machinery was undamaged. Fighting Efficiency - Slightly impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ITHURIEL 12th Aug., 1942	Rammed submarine	2 months	ITHURIEL, while operating in the Mediterranean, rammed an enemy submarine. The bow structure for 16 ft. aft and from keel to 4 ft. above the lower deck was set over 6 ft. to starboard. Complete flooding occurred in the fore peak and central store and minor flooding took place on the lower deck for 40 ft. Fighting Efficiency - Impaired. A reduction of speed was necessary due to the damaged bow.
WOLVERINE 12th Aug., 1942	Rammed submarine	3½ months	WOLVERINE, while operating in the Mediterranean, rammed an enemy submarine. The foremost 16 ft. of the forecastle deck collapsed and the bow structure for 50 ft. at keel level was wrecked and forced aft. All bow compartments for 50 ft. were flooded. The S/A and A/S equipment was damaged. Fighting Efficiency - Seriously impaired. The speed was appreciably reduced due to the weakened condition of the bow structure.
FORESIGHT 12/13th Aug., 1942	(i) One Contact Torpedo dropped by aircraft (ii) Torpedo fired by our own forces	Sunk	FORESIGHT, while operating S.W. of Sicily, was hit by a torpedo dropped from an enemy plane. The torpedo struck the ship abreast the steering compartment. The ship's back was broken and the after end dropped 2 ft. Immediate flooding occurred below the lower deck of compartments abaft the engine room and slow flooding took place in the engine room. The main engines were undamaged and useable with great vibration at all speeds. The steering gear was wrecked. FORESIGHT was taken in tow but slowly settled aft until the upper deck was awash. The ship was abandoned and sunk by a torpedo fired by own forces about 15½ hours after being attacked.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
During a combined operations raid on Dieppe the following HUNT class destroyers took part and were subjected to attacks by air, shore based batteries and minor enemy craft.			
BERKELEY 19th Aug., 1942	(i) Two Direct Hit Bombs (ii) Two Torpedoes fired by own forces	Sunk	BERKELEY sustained two direct hits on the starboard side of the upper deck just forward of the bridge. The ship's back was broken and the fore end was flooded. The vessel was abandoned with a heavy list to starboard and trim by the bow and was finally sunk by our own forces.
GARTH 19th Aug., 1942	(i) One Direct Hit 3.7 inch Shell (ii) One Direct Hit 2 pounder direct action fuzed Shell (iii) Near Miss Bombs	3 days	GARTH sustained two direct shell hits and several near misses. The direct hit by the 3.7 inch shell pierced the transmitting station and charthouse but did not explode. Several electric leads in the T.S. were severed and the echo sounding receiver broken. Type 286P and type 86 sets were out of action due to splinter damage. The direct hit by the 2 pounder occurred on the 2 pounder multiple pom-pom but the damage was not serious and the gun was able to fire. Further superficial damage was caused by splinters from "shorts". Near miss bombs which fell fractured several inlet and discharge pipes and caused minor shock damage. Fighting Efficiency - Slightly impaired.
BLEASDALE 19th Aug., 1942	Shell and/or Bomb	2 days	BLEASDALE and ALBRIGHTON both sustained minor damage.
ALBRIGHTON 19th Aug., 1942		4 days	
CALPE 19th Aug., 1942	Near Miss Bomb	9 days	CALPE sustained minor damage from near miss bombs.
FERNIE 19th Aug., 1942	Direct Hit Shell	4 days	FERNIE was hit by a shell which put the director out of action.
BROCKLESBY 19th Aug., 1942	Several Direct Hit 3 inch and below Shells	6 weeks	BROCKLESBY came under heavy fire and was repeatedly hit. Both engines were put out of action and the ship grounded by the stern. Temporary repairs were completed in three minutes which enabled the ship to get clear under her own power. Fighting Efficiency - Impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MARNE 27th Aug., 1942	One "Short" 4.5 inch probably 5 inch Shell	6 weeks	MARNE was in action with an enemy ship when a shell burst about 6 ft. above her quarter deck on the starboard side. Extensive but not serious splinter damage occurred, the quarter deck plating and cabins and compartments below being damaged. Minor damage occurred to electric circuits. The port .5 inch machine gun was out of action. Fighting Efficiency - Slightly impaired.
ERIDGE 29th Aug., 1942 D.N.C.4B/R181	One Contact Torpedo fired by E-boat	Not Repaired	ERIDGE, while in the Mediterranean after completing a bombardment of the Daba area, and proceeding at 20 knots was attacked by an enemy motor torpedo boat. The torpedo struck on the starboard side between the engine and gearing rooms and caused a hole in the ship's side 20 ft. long extending from 3 ft. below upper deck to the keel. Flooding to the waterline occurred in the engine room, gearing room and after oil fuel tanks. The ship listed 18° to starboard. Complete failure of all electrical power took place. The starboard engine and auxiliaries were wrecked. Fighting Efficiency - Seriously impaired. The vessel was immobilised and taken in tow. REMARKS This incident emphasised the need for the port and starboard superheater auxiliary bulkhead valves and the saturated steam bulkhead valves to be operated from the upper deck as well as in the engine room.
HURSLEY 29th Aug., 1942 D.N.C.4B/R197	One Near Miss 250 kgm delay action fuzed Bomb	10 days	HURSLEY, while returning to Alexandria after a bombardment of the Daba area, was attacked by enemy aircraft. A bomb exploded about 20 ft. to port abreast the after oil fuel tanks. Minor damage occurred to the hull abreast the explosion. Shock caused fracture of the feet of the lubricating oil cooler and failure of lighting in the engine and gearing rooms. The gyro compass was put out of action. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SIKH 14th Sept., 1942	Number unknown Direct Hit Shells	Sunk	SIKH, while taking part in a raid on Tobruk, was fired on by shore batteries. A direct hit occurred in the gearing room and the forced lubricating pumps, after switchboard and fire and bilge pumps were put out of action. The starboard main engine seized but it was later possible to steam for ten minutes on the port engine. The steering gear was put out of action due to a direct hit on the steering compartment and the ship was out of control and circling with the rudder jammed. "B", "X" and "Y" magazines were flooded as a precautionary measure. "A" magazine could not be flooded due to a fierce cordite fire around the flooding position in the forward mess decks and damage caused to magazine flooding gear. The forecastle deck was red hot. The ship gradually listed to starboard and ZULU was ordered to take her in tow. SIKH was hit again 3 or 4 times and a direct hit on the quarter deck of ZULU parted the tow. SIKH was repeatedly hit and orders to abandon were given. The ship finally sunk aided by scuttling charges.
OTTAWA (H.M.C.S.) 14th Sept., 1942	Torpedo fired from submarine	Sunk	OTTAWA was torpedoed and sunk by an enemy submarine in the North Atlantic. No further information available.
ZULU 19th Sept., 1942	(i) Five or Six Direct Hit Shells (ii) One Direct Hit delay action fuzed Bomb	Sunk	ZULU, while taking part in the raid on Tobruk, was fired on by enemy shore batteries, and later, when returning from the raid, was attacked by enemy aircraft. ZULU attempted to take SIKH in tow and while doing so received 3 or 4 direct hits from shore batteries, one of which burst on the quarter deck and parted the tow. A further two hits were received and ZULU was ordered to withdraw from Tobruk. One leg of the tripod mast was shot away and the ship's side was holed in the torpedomen's mess, wardroom and the C.P.O's mess. The W/T sets were damaged. Minor controlled flooding took place in four compartments. Later when proceeding at 25 knots ZULU was attacked by enemy aircraft and sustained a direct hit on the side from a bomb which burst in the engine room. The after boiler room, engine room and gearing room were flooded. The ship was taken in tow by HURSLEY, but later as she began to sink rapidly, orders were given to abandon ship and ZULU finally listed to starboard and sank.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SOMALI 20/24th Sept., 1942 D.N.C.4B/R180	One Contact Torpedo fired from submarine	Sunk	SOMALI while operating in the Greenland sea at 12 knots was struck by a torpedo on the port side abreast the engine room. The ship's side was holed and the upper deck torn and buckled in the vicinity of the explosion. The forward bulkhead of the after boiler room and the after bulkhead of the gearing room were buckled and were subsequently shored. The engine room, after boiler room and gearing room flooded immediately and minor flooding took place abaft the gearing room. SOMALI rapidly listed 15° to starboard and trimmed aft until the starboard side of the quarter deck was awash. The H.P. electrical supply failed but the L.P. supply continued to function. Torpedo tubes were blown overboard by the explosion. Topweight, anchors and cables were jettisoned and the ship was taken in tow by ASHANTI. 21st September, 1942. The list increased to 20 degrees and the ship yawed badly in tow. 22-23rd September, 1942. Pumping operations and further removal of topweight decreased the list to 10 degrees but the weather deteriorated. 24th September, 1942. The weather further deteriorated to a full gale and snowstorm and SOMALI broke her back and sank.
VOYAGER (H.M.A.S.) 23rd Sept., 1942	Bombed whilst aground	Destroyed	VOYAGER grounded in Betano Bay, Timor Island, whilst landing reinforcements for Australian forces. Subsequently she was attacked by enemy aircraft and bombed whilst aground. VOYAGER was finally destroyed by our own forces when it was found impossible to effect salvage.
VETERAN 26th Sept., 1942	Torpedo fired from submarine	Sunk	VETERAN was torpedoed and sunk in the North Atlantic. No further information available.
BLEASDALE 10th Oct., 1942 D.N.C.4B/R169	One Contact probably type 'R' charge 90 lbs. Mine 13 fathoms	1 month	BLEASDALE was proceeding south east of Nab Tower at 18 knots when a mine exploded on the port bow at the waterline. The stem bar was fractured 11 ft. above the keel, and the structure forward of the foremost transverse bulkhead below the lower deck was crushed and turned to starboard. Compartments forward of the transverse bulkhead at the after end of the cable locker were flooded to the waterline. Fighting Efficiency - Slightly impaired. Maximum speed and manoeuvrability were reduced due to the fore end damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VISCOUNT 15th Oct., 1942	Rammed submarine	3 months including refit	VISCOUNT, while operating in the North Atlantic at 26 knots, rammed an enemy submarine on the port side about 20 ft. abaft the conning tower. The submarine was passing from starboard to port of VISCOUNT and moving at 15 knots. The bow lifted and crashed on the U-boat, pinning it for 15 seconds. The stem was buckled and turned to port from fore foot to within 4 ft. of the upper deck. Keel and lower strakes of hull plating were distorted and fractured from the bow to 35 ft. aft. Bulkheads 11 and 17, 18 ft. and 28 ft. from point of impact respectively, were damaged and strained. The lower deck at the fore end was distorted. Immediate flooding to the waterline occurred forward of the forward oil fuel tank. Fighting Efficiency - Impaired. Maximum speed was reduced to 14 knots and the S/A gear was out of action.
FAME 16th Oct., 1942	Rammed submarine	3½ weeks	FAME rammed an enemy submarine at 18 knots with a glancing blow. The submarine was on the surface and stopped. The hull plating at the waterline was holed 8 ft. by 6 inches in the engine room and 5 ft. by 2 inches in the after magazine. Minor controlled flooding took place in the engine room. Fighting Efficiency - Impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PANTHER 7th Nov., 1942 D.N.C.4B/R195	One Near Miss 500 kgm direct action fuzed Bomb	1 month	PANTHER, while proceeding off Algiers, was attacked by enemy aircraft and sustained a near miss bomb which exploded abreast the forward oil fuel tanks and magazines about 30 ft. from the port side. Serious hull damage occurred in the vicinity over a length of 50 ft. from 5 ft. below to 6 ft. above the waterline on the port side and minor damage occurred throughout the ship. Splinter damage was extensive. Fixed ammunition in No.1 magazine ignited, but no explosions occurred, and minor fires were started in the lower mess deck. One set of telemotor leads were cut. Compartments forward of the forward boiler room, with the exception of the lower naval store, fresh water tanks and fore peak were flooded to varying depths. Fighting Efficiency - Seriously impaired. Extensive flooding reduced manoeuvrability and maximum safe speed to 15 knots. The forward magazines and L.P. room were flooded and out of action. Endurance was reduced due to loss of oil fuel and diesel oil. REMARKS This incident emphasised the need for an extra portable pump i.e. making 2 per ship. This was being done vide A.F.O.1841/43, one to be diesel driven as supply permits.
MALCOLM 8th Nov., 1942 D.N.C.4B/R216	Five Direct Hit 75 mm. delay action fuzed Shells (French)	2½ months including refit	MALCOLM, while attacking the boom at Algiers during Expeditionary Force landing operations at 25 knots, was fired on by French shore batteries and received five direct hits on port side. Hit No.1 perforated forward superstructure and burst in a gravity tank at after end of forecastle. Hit No.2 perforated the sheer strake at the mid-length of forward boiler room and burst in No.7 peace tank. Hit No.3 struck the base of the after funnel and burst in the boiler uptake. Hit No.4 perforated the sheer strake at the fore end of the middle boiler room and exploded in No.5 peace tank. Hit No.5 perforated the sheer strake, and the forward bulkhead of the middle boiler room and came to rest in C.P.O's mess without exploding. Minor structural damage due to the hits was sustained. Splinter damage occurred to the exhaust steam line in the middle boiler room and the feed water system was contaminated. Minor controlled flooding occurred in the forward boiler room through splinter holes. Fighting Efficiency - Seriously impaired. Speed was temporarily reduced to 8 knots due to three boilers being out of action and feed water contaminated. Type 271 radar, and bridge control to depth charge release gear out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COWDRAY 8th Nov., 1942	One Direct Hit 500 kgm delay action fuzed Bomb	22½ months	COWDRAY was attacked by enemy aircraft while on A/S patrol east of Cape Matifon, Algeria, at 25 knots. A bomb struck the starboard edge of forecastle abreast the fore end of bridge, perforated the upper and lower decks and the crown of the fresh water tank, and passed out through the keel to explode under the forward boiler room. The hull plating under the forward boiler room was fractured between the bilge keels, port and starboard, and blown upwards 12 ft. The port and starboard plating below the lower deck in way of the forward boiler room and the forward oil fuel tanks was seriously buckled and fractured. The forward bulkhead of the forward boiler room was seriously buckled and destroyed for 5 ft. above the keel, and the after bulkhead of the forward boiler room was bulged aft and fractured at the base. The forward bulkhead of the oil fuel tanks was bulged forward and torn from the boundary angles. The forecastle deck was corrugated in way of the bridge and minor damage occurred to the upper deck, while the lower deck was fractured and bulged over the oil fuel tanks. Whipping caused buckling of the bulkhead between after the oil fuel tanks and of the hull plating in the vicinity. Immediate flooding of forward boiler room, stabilizer compartment, forward oil fuel, diesel and fresh water tanks, lower power and gyro compass rooms and ward room flat occurred. Slow flooding of after boiler room, No.1 magazine, and lower mess deck took place. The forward boiler was seriously damaged and the auxiliary machinery wrecked or seriously damaged. Minor shock damage occurred to main engines. Immediate failure of electrical power took place. Low power generators, gyro compass and A/S equipment were destroyed. The low power and forward high power switchboards, radar alternators and echo-sounding equipment were damaged. Effect on fighting efficiency The ship was immobilised and taken in tow. Both boiler rooms, forward oil fuel, diesel and fresh water tanks were flooded. Low power generators, gyro compass and A/S equipment were out of action. Main armament was stiff to train.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BOADICEA 8th Nov., 1942 D.N.C.4B/R188	One Direct Hit 5.1 inch delay action fuzed Shell	1 month	BOADICEA, while in action with a French destroyer off Oran, was hit by a shell. The shell struck the ship's starboard side, perforated the lower deck, and the middle line bulkhead and burst in the forward 4.7 inch shell room. The ship's side, lower deck, and middle line bulkhead in shell room were holed and considerable damage was caused by splinters to structure in the vicinity of burst. The cold room, including evaporator pipes and fittings of the refrigerator plant, was wrecked. A number of ammunition boxes were ignited by splinters but did not explode. Minor flooding occurred in the 4.7 inch shell room. Fighting Efficiency - Slightly impaired. Forward 4.7 inch shell room was temporarily out of action. Watertight subdivision impaired due to damage to forward bulkhead of shell room.
BROKE 8/9th Nov.,1942	Number unknown Direct Hit Shells	Sunk	BROKE rammed the boom at Algiers, and came under heavy fire from shore batteries. The ship was repeatedly hit on the hull and superstructure and was seriously damaged. The engine room was holed at the waterline and the after magazine, wardroom flat, forward mess decks, and central store were flooded. Next day BROKE was taken in tow from Algiers, but foundered whilst on passage to Gibraltar.
MARTIN 10th Nov., 1942	Three Contact Torpedoes fired from submarine	Sunk	MARTIN operating in the Mediterranean at 16 knots was torpedoed by an enemy submarine. 1st Torpedo struck just abaft the after oil fuel tanks and a serious fire started immediately in the wardroom and after cabin flat. 2nd Torpedo struck in the vicinity of the asdic compartment. The forecastle deck was wrecked and 'A' mounting blown off. Extensive fires were started in the remaining mess decks, and flames were observed coming up 'B' ammunition hoists. 3rd Torpedo struck in the vicinity of the gearing room. Immediate flooding of the engine room and gearing room took place and all lighting failed. Approximately 30 seconds elapsed between the 1st and 3rd torpedoes which all struck on the starboard side. Shortly after the 3rd explosion the ship listed heavily to starboard and settled by the bows. It was estimated that the bridge was underwater within 2 minutes of the 1st explosion. The ship settled with the stern floating for 20 minutes before sinking and as she sank at least one depth charge exploded.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MARNE 12th Nov., 1942 D.N.C.4B/R232	One Contact Torpedo fired from submarine	15 months	MARNE, while standing by HECLA in the Atlantic off Gibraltar, and proceeding slow ahead was torpedoed. The torpedo struck the port side abreast the 'A' bracket. The stern structure abaft 'Y' magazine was blown away or destroyed for 37 ft., the upper deck being blown upwards and the ship's side blown outboard to abreast the fore end of the magazine. The after end of the superstructure was crushed against 'X' gun. Immediate flooding of 'X' shell room and minor slow flooding of the 4 inch HA/LA magazine occurred. Minor controlled flooding took place in the plummer block and gland compartments. Heavy seas caused minor flooding on the lower deck. A small fire occurred in the vicinity of 'X' magazine. Both 'A' brackets were torn from the shell plating and the shafts were bent down to 12 feet below the keel. The rudder and steering gear were lost. 'A' magazine was flooded as a precautionary measure against a further torpedo attack. Fighting Efficiency - Severely impaired. The ship was immobilised. 'X' gun was out of action and its magazine group and 'A' magazine were flooded.
WILTON 12th Nov., 1942	One Direct Hit (Unexploded) Bomb	Nil	WILTON when attacked by enemy aircraft sustained a direct hit aft on the starboard side. The bomb passed through the gunner's store and out through the ship's side about 3 ft. above the lower deck level, without exploding. Minor flooding occurred in the canteen flat to 6 inches in depth due to the bomb exit hole being under water when the ship took avoiding action. Fighting Efficiency - Not impaired.
HAMBLEDON 12th Nov., 1942	One Torpedo fired from submarine	Nil	HAMBLEDON was operating at Fedala during the North African landings when submarines attacked the harbour and she sustained minor damage from the explosion of a torpedo which sank a nearby transport. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRAMHAM 20th Nov., 1942 D.N.C.4B/R218	One Direct Hit 250 kgm delay action fuzed Bomb	7½ months	BRAMHAM, while proceeding in the Mediterranean at 22 knots, was attacked by enemy aircraft and sustained a direct hit on the upper deck, abreast the after 4 inch mounting, on the port side. The bomb perforated the lower deck, passed through a fully stowed bottle rack in the after (No.2) magazine, perforated the ship's bottom and exploded deep in the sea off the starboard quarter. Minor structural damage occurred in the path of bomb and a hole 3½ ft. by 3½ ft. was made in the hull plating. Immediate flooding of both after magazines, and lower deck over, to waterline occurred. No.2 magazine was fully stowed and five rounds of 4 inch ammunition ignited, but the inrush of sea water quenched the fire. The magazine vented through the supply hatch and bomb entrance hole, and the lower deck was bulged upwards a maximum of 17 inches. Twenty rounds of ammunition were damaged. Fighting Efficiency - Seriously impaired. All ammunition was lost to the after guns and No.3 gun was reduced to quarters firing. Speed was reduced to 11 knots to avoid aggravating the hull damage.
ITHURIEL 28th Nov., 1942 D.N.C.4B/R213	Two Near Miss 500 kgm delay action fuzed Bombs	Not repaired	ITHURIEL, while in Bone Harbour, was attacked during an air raid. Two near misses exploded under the ship, one abreast the after magazines and the other abreast the engine room. Serious damage occurred in way of bursts which caused structural weakness at the fore end of the engine room and in way of the magazines. The shell plating was split and torn over this area. Slow flooding of the engine room and the after magazine group took place which spread to the after oil fuel tanks and to above the lower deck. Pumps were unable to cope with the flooding which finally extended from the fore bulkhead of the engine room to the steering compartment. The ship listed heavily to starboard and was beached. All lighting and power was immediately lost. Serious damage occurred to engine room auxiliaries, the port and starboard main circulators were seized and the starboard main inlet was strained and leaking. Fighting Efficiency - Severely impaired. The ship was immobilised and beached. Main armament was in local control only and the after magazine group was flooded.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUENTIN 2nd Dec., 1942	Two Contact Torpedoes dropped by aircraft	Sunk	QUENTIN, while operating in the Mediterranean, was attacked by enemy torpedo bombers and was hit by two torpedoes. 1st Torpedo struck the starboard side abreast the engine room about 8 ft. forward of the after bulkhead. Immediate flooding of the after boiler room, engine and gearing rooms, shaft tubes and gland spaces took place. Damage sustained put the pumping system out of action. The forward torpedo tubes were blown overboard and the starboard oerlikon platform collapsed. 2nd Torpedo struck the port side amidships about half an hour after the ship was abandoned. The ship appeared to break in two and there was a violent explosion. QUENTIN sank by the stern about 15 seconds after the 2nd hit.
PENYLAN 3rd Dec., 1942	One Torpedo fired from E-Boat	Sunk	PENYLAN while operating in the English Channel, was sunk by a torpedo fired from an E-boat. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PORCUPINE 9th Dec., 1942 D.N.C.4B/R224	One Contact Torpedo fired from submarine	Not repaired	PORCUPINE was on passage from Gibraltar to Algiers at 14 knots when a torpedo struck the port side about bilge keel level just forward of the after bulkhead of the engine room. The side plating was holed 31 ft. by 14 ft. deep and distorted over an area of 1,000 sq. ft. From mid length of engine room to the after end of the gearing room the side framing and longitudinals were destroyed or seriously damaged. The bulkhead between the engine room and the gearing room was destroyed and the after bulkhead of the gearing room seriously damaged. Over the engine and gearing rooms the upper deck was bulged upwards and cracked. The stern structure abaft the after bulkhead of the gearing room was out of alignment. Immediate flooding of the engine room, gearing room, two after oil fuel tanks, plummer block and gland compartments took place. Slow flooding occurred in the wardroom and after cabin flat and minor flooding took place in the after boiler room. The ship took an immediate list of 3 to 5 degrees to starboard which increased finally to 28 degrees. Machinery and electrical equipment in the engine and gearing rooms was destroyed or seriously damaged and all electrical power failed. The foremost torpedo mounting was blown overboard, and the after mounting jammed. An oil fuel fire which started in the engine room was quickly extinguished by the flooding, and by escaping steam. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow, the engine room and gearing room being wrecked. The after oerlikons and torpedo tubes were out of action and the after guns were in local control only.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITSHED 11th Dec., 1942 D.N.C.4B/R243	(i) One Direct Hit 4 inch delay action fuzed Shell (ii) Several Direct Hit direct action fuzed Oerlikon Shells	6 weeks	WHITSHED, while attacking an enemy convoy off Dieppe at 28 knots, was hit by enemy shell fire. A direct hit by a 4 inch shell was sustained at the fore end of the after boiler room, the shell exploding in the peace tank. A hole 4 inches in diameter was made in the ship's side and the peace tank was wrecked. The forward bulkhead of the boiler room in way of the peace tank was seriously damaged and pierced by splinters. Minor controlled flooding took place in the after boiler room. No.2 boiler was damaged and shut down. Both dynamos were off the board due to shock, but the secondary lighting functioned correctly. The gyro compass failed for a time due to loss of power. A number of hits were received by oerlikon shells which burst on impact, but no damage was caused. Fighting Efficiency - Impaired. The after boiler room was out of action and maximum speed was reduced to 22 knots.
BROCKLESBY 11th Dec., 1942	Number unknown "Short" size and type unknown Shells	5 days	BROCKLESBY while attacking an enemy convoy off Dieppe at 28 knots suffered minor superficial and electrical damage caused by splinters from "shorts". Fighting Efficiency - Slightly impaired. The T.S. was out of action.
WORCESTER 11th Dec., 1942	Number unknown "Short" size and type unknown Shells	4 days	WORCESTER, while attacking an enemy convoy off Dieppe at 28 knots, suffered minor damage to the hull structure and director caused by splinters from "shorts". Fighting Efficiency - Unimpaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VESPER 11th Dec., 1942 D.N.C.4B/R243	(i) Seven Direct Hit Oerlikon or Pom-pom direct action fuzed Shells (ii) One Direct Hit 88 mm. direct action fuzed Shell	6 months including conversion	VESPER while attacking an enemy convoy off Dieppe at 28 knots was hit by enemy shell fire. Three direct hits occurred between the forecastle and upper decks in way of the crew's space, starboard side. Minor structural damage was sustained. Direct hit was sustained on the starboard side of the type 286 radar office. The indicator and receiver sets and the aerial leads of type 252 radar were damaged by splinters. Direct hit occurred at the after end of the W/T office. Aerial leads to type 252 and leads to the motor alternator of type 286 were cut by splinters. Direct hit occurred on the perspex window on the aft side of type 271 radar. The aerial reflector and type 271 was damaged. Direct hit occurred on the toughened glass windscreen on the port side of the bridge. Direct hit with an 88 mm. shell occurred on the starboard side of the W/T office. The main transmitter was damaged by splinters. Fighting Efficiency - Slightly impaired. The W/T and type 286 radar was out of action.
ALBRIGHTON 11th Dec., 1942	Number unknown "Short" size and type unknown Shells	Nil	ALBRIGHTON, while attacking an enemy convoy off Dieppe at 28 knots, suffered superficial damage to the hull structure caused by splinters from "shorts". Fighting Efficiency - Not impaired.
BLEAN 11th Dec., 1942	Two Contact Torpedoes fired from submarine	Sunk	BLEAN, while escorting a convoy in the Mediterranean 60 miles west of Oran, was torpedoed by an enemy submarine. 1st Torpedo struck the ship right aft. 2nd Torpedo struck forward about 20 seconds later. Both hits were to starboard. The ship was enveloped in a pall of smoke and was later seen to roll over to port and sink by the stern. The bows rose vertically and about 40 ft. remained above the water for about a minute. The ship sank in about 4 minutes from the time of the 1st torpedo hit.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FIREDRAKE 16/17th Dec., 1942	One Contact Torpedo fired from submarine	Sunk	FIREDRAKE, while escorting a convoy off the north coast of Ireland, was torpedoed and sunk by an enemy submarine. A torpedo struck the starboard side, probably abreast the forward boiler room. The forward bulkhead of the after boiler room (No.3) remained intact. FIREDRAKE listed heavily to starboard, righted herself and then broke in two about one minute after the explosion. The bows floated away and capsized to starboard with 20 ft. of the fore end remaining out of water, finally sinking 30 minutes later. The stern remained afloat on an even keel with the after bulkhead of the after boiler room pounded by heavy seas. Depth charges aft and torpedoes were jettisoned. At 0045/17 the weather deteriorated and the bulkhead collapsed. FIREDRAKE was abandoned and settled rapidly.
PARTRIDGE 18th Dec., 1942	One Contact Torpedo fired from submarine	Sunk	PARTRIDGE was carrying out an anti-submarine sweep in the Western Mediterranean at 16 knots when she was struck by a torpedo in the vicinity of the after end of the gearing room. Immediate flooding of the engine room, gearing room and proably the ward room flat occurred. The stern structure abaft No.3 gun listed to port and partially broke away from the forward structure, while the fore end listed to starboard and settled down aft. Both ends of the ship rapidly sank.
PETARD 19th Dec., 1942	Number unknown Near Miss size and type unknown Bombs	1 week	PETARD, while at Benghazi during an air raid on the harbour, sustained minor damage from near misses. Fighting Efficiency - Impaired.
VANESSA 26th Dec., 1942	Rammed submarine	6 days	VANESSA, while operating in the North Atlantic at 23 knots, rammed an enemy submarine. When attacked the submarine was in the act of surfacing, with conning tower in view, and moving at approximately 18 knots. VANESSA rammed the starboard side, between the conning tower and stern, with a glancing blow and sustained minor damage to the fore foot. Fighting Efficiency - Not impaired.

DESTROYERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HESPERUS 26th Dec., 1942	Rammed submarine	3 months, including refit	HESPERUS, while operating in the North Atlantic at 10 knots, sighted an enemy submarine on the surface, proceeding at approximately 18 knots. HESPERUS increased to full speed and rammed the submarine at the base of the conning tower on the starboard side. The bow from the fore foot to upper deck was twisted and fractured, the lower portion of the bows being turned 90 degrees to starboard. The flat and vertical keels and garboard strake were distorted for 41 ft. from the bow. The internal structure below the lower deck was badly damaged. Immediate flooding occurred below the lower deck forward of the forward magazines. Minor electrical damage was sustained by circuits in flooded compartments. The asdic dome and S/A oscillators were carried away. Fighting Efficiency - Impaired. Maximum speed was reduced due to flooding. The asdic and S/A gear were out of action.
OBEDIENT 31st Dec., 1942	Salvo "Short" 8" direct action fuzed Shell	Nil	OBEDIENT while in action with a German cruiser of the "Hipper" Class, in the Barents Sea, was straddled by one salvo which shot away the main W/T aerials. Fighting Efficiency - Slightly impaired. The W/T was out of action for $1\frac{1}{2}$ hours.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ONSLOW 31st Dec., 1942 D.N.C.4B/R223	Three Direct Hit One "Short" direct action fuzed Shells	2½ months including refit	ONSLOW, while in the Barents Sea engaged in action a German cruiser of the "Hipper" class, and received damage from direct hits and "shorts" from shells. 1st Hit occurred on top of the funnel, which was wrecked, and caused extensive splinter damage. Types 285 and 286 radar and starboard oerlikon were damaged, the main aerials were severed, and the two forward boilers indented. 2nd Hit was sustained on the sheer strake between 'A' and 'B' guns, on the port side making a hole 6 ft. by 5 ft. Extensive splinter damage occurred to important electrical cables and the forward oil fuel filling line and 'A' gun barrel were penetrated. Serious fires were started and the forward magazines were flooded as a precautionary measure. 3rd Hit occurred on the port side edge of 'B' gun deck. A hole 6 ft. by 4 ft. was made in the superstructure and 4 ft. square in 'B' gun deck. Extensive splinter damage occurred to fire control and important electrical cables. 'B' gun was wrecked. The Short occurred at lower deck level between 'A' and 'B' guns causing minor damage to the ship's side on the port side. The ship listed 10 degrees to port due to the flooded magazines but this was corrected by counterflooding. Fighting Efficiency - Seriously impaired. 'A' and 'B' guns, types 285 and 286 radar and the starboard forward oerlikon were out of action. Ammunition to the forward guns was lost. REMARKS This incident emphasised the need for each destroyer to have increased supply of 4 in number 40 ft. No.3 and 4 in number 20 ft. No.2 hoses. Portable self-contained battery operated floodlights, pattern 17081 to be supplied to all ships in the near future. C.A.F.O.1984/43 issued to cover the fitting of an isolating valve to the oil fuel filling line where it joins the vertical filling line. C.A.F.O.1273/43 authorised to supply to commissioned and new construction destroyers of a further 3-6 way emergency switchboards. A.F.O.4307/43 authorised lagging of the deck over the main after switchboard in this class of ship.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ACHATES 31st Dec., 1942 D.N.C.4B/R214	Two Direct Hit Two "Short" direct action fuzed Shells	Sunk	ACHATES, while in the Barents Sea, in action with a German cruiser of "Hipper" class was hit by shell fire. A "Short" abreast the forward magazines, port side, caused flooding through splinter holes which extended to the forward crew space. Type 271 radar was put out of action, and speed was reduced to 15 knots. Direct Hit on the fore end of the bridge, wrecked the bridge, put 'B' gun out of action and caused a minor cordite fire on 'B' gun deck. Direct Hit struck abreast 'B' gun in the seamen's washplace on the port side. The lower deck was now flooded to the forward boiler room and a temporary failure of lighting and power occurred forward. The T.S. and L.P. room were out of action. A "Short" abreast the after boiler room caused it to flood and minor controlled flooding took place in the forward boiler room. ACHATES by this time had listed 15 degrees to port and was well down by the bow. The maximum speed was 12 knots. The list increased until the upper deck was awash and the ship finally rolled to port and sank about 3¼ hours after the commencement of the action. REMARKS This incident emphasised the need for the design of magazine hatches to be reviewed.
OBDURATE 31st Dec., 1942	One Short Shell	5 weeks including partial refit	OBDURATE, while in the Barents Sea, in action with a German cruiser of "Hipper" class received damage from a "short" which exploded off the starboard side abreast the bridge. Splinter damage occurred to the structure in the vicinity of the bridge, charthouse, signal deck, director, 'A' gun shield, type 286 radar office, funnel and searchlights. Splinters cut and damaged the director elevating gear, cables of director fire control circuits, director firing circuits, VC/VF transmitter and type 286 radar. Other minor damage occurred to electrical equipment. Fighting Efficiency - Impaired. The director elevating gear, director fire control circuits, director firing circuits, VC/VF transmitter and type 286 radar were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AVONVALE 29th Jan., 1943 D.N.C.4B/R250	One Contact Torpedo dropped by aircraft	15 months	AVONVALE, while escorting a convoy in the Mediterranean at 18 knots, was attacked by a torpedo bomber. The torpedo struck the starboard side abreast the forward magazine, about 5 ft. below the waterline. The fore end structure forward of and including the forward magazine was blown away. Structure abaft this to the fore bulkhead of the forward boiler room was severely damaged and minor damage occurred to the bridge structure. Immediate flooding to the waterline of compartments forward of the forward boiler room occurred. All steam, power and lighting was temporarily lost due to the contamination of the forward oil fuel tanks and all electrical equipment forward of the low power room was wrecked. All communications were temporarily out of action due to shock. Fighting Efficiency - Severely impaired. The ship was temporarily immobilised and taken in tow. The forward 4 inch gun and ammunition was lost and the remaining guns were in local control only. Both radar sets and the forward H.P. and L.P. switchboards were out of action. A/S gear, gyro compass and S/A gear was destroyed.
REDOUBT 23rd Feb., 1943	Rammed submarine	1 week approximately	REDOUBT, while ramming an enemy submarine, sustained slight damage. The stem casting was fractured and the forward plating and framing buckled. The asdic dome and chernikeef log were bent aft. Fighting Efficiency - Slightly impaired.
ASSINIBOINE (H.M.C.S.) 2nd March, 1943	Rammed submarine	4½ months, including depth charge damage and repair of bent shaft found when on trials	ASSINIBOINE, while operating in the North Atlantic at 15 knots, rammed an enemy submarine. She struck with a glancing blow and the submarine passed down the starboard side bumping the ship abreast the forward boiler room. The starboard side abreast the boiler room was stove in and the starboard propeller damaged. Fighting Efficiency - Seriously impaired. REMARKS ASSINBOINE was also damaged by her own depth charges. For brief account of damage, see Appendix 1, Page 470.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HARVESTER 11th March, 1943	(i) Rammed submarine (ii) Two Contact Torpedoes fired from submarine	Sunk	HARVESTER, while escorting a convoy in the North Atlantic at 26 knots, rammed a U-boat just abaft the conning tower. After ramming, the engines were stopped, and the submarine passed beneath the ship and came to rest under the stern for about 15 minutes. The submarine was finally cleared and about 5 minutes later an underwater explosion occurred in the vicinity of HARVESTER's stern. The fore end structure was damaged and the fore peak, S/A compartment, F.W. tank, A/S compartment, lower central store and refrigerating compartment were flooded. Minor damage occurred aft, the magazine was flooded and minor flooding took place in the wardroom flat. The asdic and port engine were out of action and the starboard engine was stiff to turn. Later the starboard engine commenced to race probably due to a broken shaft or missing propeller and the ship was immobilised. About 10 hours after the ramming, a torpedo struck the port side and the ship was abandoned with a heavy list to starboard. 5 minutes later a 2nd torpedo struck in the vicinity of the forward magazine, which was reported to have exploded, and the ship broke in two and sank rapidly. REMARKS The considerations affecting the ramming of U-boats have been promulgated in C.A.F.O.2421/43.
LIGHTNING 12th March, 1943	Two Contact Torpedoes fired from E-boat	Sunk	LIGHTNING, while operating in the vicinity of Galita Island in the Mediterranean at 28 knots, was torpedo by an E-boat. The first torpedo hit the ship right forward. Engines were ordered to stop to prevent further damage to the structure forward. After the ship had lost steerage way a second torpedo struck approximately abreast the fore end of the engine room. The ship broke in two and rapidly settled in the water. LIGHTNING was abandoned, and within a short time the bow and stern became vertical and sank rapidly.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
DERWENT 19th March, 1943 D.N.C.4B/R281	One Contact Torpedo dropped by aircraft	Indeterminate ship not repaired	DERWENT, while at anchor in Tripoli harbour, was struck by a torpedo on the port side at the fore end of the after boiler room at about waterline level. A hole about 28 ft. fore and aft by 16 ft. was blown in the port side. The bulkhead between boiler rooms was shattered while the forward bulkhead of No.1 and the after bulkhead of No.2 boiler rooms were buckled and distorted. The forecastle deck was distorted and the upper deck lifted and torn on the port side over both boiler rooms. Immediate flooding of both boiler rooms and slow flooding of the engine room, low power room and wardroom occurred with minor flooding in the gearing room. The ship listed to port, righted herself and then listed 7 degrees to starboard. Both boiler rooms were severely damaged and the boilers wrecked. All steam and electrical power was lost immediately. Communications between the bridge, torpedo tubes and depth charge positions were destroyed. The ship was beached. Burning oil drums and petrol which were floating down on DERWENT from a nearby damaged vessel were diverted by hose jet from the portable pump using suction hose over the ship's side. Fighting Efficiency - Seriously impaired. The ship was immobilised and beached due to extensive flooding. Both boiler rooms and engine room were flooded and out of action. All armament was in local control only due to loss of power. REMARKS A.F.O.4995/43 approved the fitting of stand pipes for sea suction to portable diesel pumps.
BEVERLEY (ex U.S.A.) 11th April, 1943	Torpedo fired by submarine	Sunk	BEVERLEY was torpedoed and sunk in the North Atlantic. No further details available.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PAKENHAM 16th April, 1943 D.N.C.4B/R248	(i) Five possibly six Direct Hit 4.7 inch approximately delay action fuzed Shells (ii) Contact Torpedoes fired by own forces	Sunk	PAKENHAM, while off Pantelleria Island in company with PALADIN at 20 knots, engaged two enemy destroyers, and was hit by shell fire. Hit No.1 occurred on a depth charge aft, the shell finally exploding in the fore end of the after superstructure. Surrounding structure was seriously damaged by blast and splinters, and the depth charge was shattered. The after torpedo tubes were damaged by splinters. A minor fire was started. Hit No.2 struck the sheer strake just abaft the after bulkhead of the gearing room and the shell burst in a port side cabin. The surrounding cabin structure was demolished. An extensive fire started in the cabin flat and the after magazine was flooded as a precautionary measure. The 2nd W/T office was put out of action. Hit No.3 occurred at about waterline level and burst in the engine room. There was possibly a second hit which also burst in the engine room. Extensive splinter damage occurred to pipe lines and the main steam pipes were cut. The engine room flooded to the waterline and the ship listed 10 to 15 degrees to port. Due to escaping steam the engine and gearing rooms and main switchboard were untenable. All lighting and power was temporarily lost. Hits No 4 and 5 struck on the pom-pom and searchlight. The ship finally stopped due to loss of feed water and was taken in tow by PALADIN. Later attacks were made on the ship by enemy aircraft but no damage was sustained. Finally, because of the close proximity of enemy air bases and slow speed of tow, PAKENHAM was sunk by torpedoes from PALADIN.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BADSWORTH 22nd April,1943 D.N.C.4B/R256	One Non-Contact Mine 46 fathoms	19 months	BADSWORTH, while entering Bone harbour at 14 knots, sustained an explosion off the starboard quarter. Severe buckling girthed the ship from the keel to upper deck and across the lower and upper decks in the vicinity of the after magazine (No.2). Abaft this the hull plating starboard from keel to sheer strake was severely corrugated and split. Minor damage occurred on the port side. Bulkheads and upper and lower deck structure over this area were severely buckled and split in many places. The rudder was bent slightly to starboard and the starboard shaft bracket was lifted 12 inches. The stern dropped about 4 degrees. Immediate flooding occurred, to the waterline, of the after end abaft the gearing room with the exception of two oil fuel tanks, crew space, C.P.O's mess, after magazine (No.2), gearing room and plummer block and gland spaces, all of which flooded slowly. Both port and starboard tail shafts were bent, the starboard one badly, and the starboard main engine jammed, while the port engine was stiff to turn. Minor damage due to shock occurred to castings. Electrical equipment abaft 'X' gun was seriously damaged by shock or flooding. Fighting Efficiency - Seriously impaired. The ship was immobilised and beached. 'Y' gun, steering gear, gyro compass, A.R.L. plot, depth charge rails and equipment, after magazines and oil fuel tanks were put out of action by damage or flooding.
GOATHLAND 28th April,1943	"Shorts" Shell	1 day	GOATHLAND attacked an enemy convoy during an anti-shipping sweep off the French coast. Superficial damage to structure was caused by shell splinters. Fighting Efficiency - Not impaired.
ALBRIGHTON 28th April,1943	Two Direct Hit Several "Short" Shells	10 days	ALBRIGHTON attacked an enemy convoy during an anti-shipping sweep off the French coast. A direct hit from a shell was sustained on 'B' gun mounting and on the port side of the forecastle. The steering motors were put out of action due to splinter damage to electric leads. Other minor superficial damage was done to structure by shell splinters. Fighting Efficiency - Impaired. 'B' gun was out of action. The steering gear was temporarily put out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAFOREY 29th April, 1943	Rammed E-boat	Nil	LAFOREY, in company with WHEATLAND, encountered an enemy force of six E-boats and one U-boat in the Mediterranean, south of Marittimo. LAFOREY rammed and cut in two one E-boat which buckled the stem and flooded the fore peak and cable locker. Fighting Efficiency - Impaired. Maximum speed reduced to 18 knots.
ORIBI 6th May, 1943	Rammed submarine	7 weeks repaired in U.S.A.	ORIBI, while in the North Atlantic at 22 knots, rammed an enemy submarine which was passing from starboard to port, the point of ramming being just abaft the conning tower. The stem bar was missing for 12 ft. 6 ins. above keel and the shell plating and framing over this depth and for 15 ft. aft was crumpled and forced to port. Bulkhead 9 and the lower deck in the vicinity were severely buckled and split. Immediate flooding of the fore-peak, lower central store and cable locker took place. Lighting circuits in the forward compartments were damaged. The S/A gear was wrecked. Fighting Efficiency - Impaired. Maximum speed was reduced to 12 knots. The S/A gear was out of action.
LAFOREY 9th May, 1943	One Direct Hit 88 mm. delay action fuzed Shell	Nil	LAFOREY while proceeding at 25 knots engaged enemy shore batteries on Cape Bon peninsula. A direct hit was sustained in the engine room, 6 ft. from the forward bulkhead and 1 ft. above the waterline. It made a hole in the side plating 8 inches diameter and detonated just inboard of the hull plating. Splinter damage occurred in the vicinity of the burst and the main feed tank was holed. Minor controlled flooding took place in the engine room through the shell hole. Numerous steam pipes were cut by shell splinters, and the engine room filled with steam, but the ship was able to proceed on one engine. Gun elevation, training and director firing circuits and communications to 'X' gun were cut by splinters. Communications from the bridge to the engine room, pom-pom and quarter deck were temporarily broken. Fighting Efficiency - Impaired. Speed was temporarily reduced to 15 knots but was later increased to 20 knots after repairs. 'X' gun was in local control only.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ILEX 14th May, 1943	One Near Miss direct action fuzed Bomb	2 days	ILEX, while at anchor in the outer harbour at Bone, sustained a near miss bomb about 30 yards off the port quarter. The ship's port side above the waterline was holed by splinters from the after end of the engine room to the stern. Splinters caused a minor fire in the wardroom flat, severed two multicore cables, and pierced a ready use locker on the upper deck igniting several cartridges which burnt out. The searchlight was damaged by splinters. The steering gear was put slightly out of alignment due to shock. Fighting Efficiency - Slightly impaired.
LAMERTON 15th May, 1943	Shell	Nil	LAMERTON, while in action with E-boats in the Mediterranean, sustained superficial damage to the structure. Fighting Efficiency - Not impaired.
WENSLEYDALE 28/29th May, 1943	Shell	Nil	WENSLEYDALE, while in action with E-boats in the English Channel, sustained damage to the torpedo tubes through shell fire. Fighting Efficiency - Impaired.
PETARD 16th June, 1943	One Near Miss Bomb	Nil	PETARD, while operating south of Pantelleria Island, sustained minor damage from a near miss bomb. Fighting Efficiency - Not impaired.
PETARD 18th June, 1943	Three Near Miss delay action fuzed Bombs	2 days	PETARD, while alongside the mole during an air raid on Bizerta, sustained one near miss off the port quarter, which struck and exploded against the mole and two other near misses one to port and one to starboard of the bridge. Minor splinter damage occurred to No.8 oil fuel tank, the after torpedo tubes and the quarter deck in the vicinity. Structure near the forward oil fuel tanks and magazines was strained and leaking and minor damage occurred to fittings in these compartments. The gearing of the flood valve to the pom-pom magazine was jammed. The standard and gyro compasses, echo sounding gear and A.R.L. plot were damaged by shock and the support to the Mark V rangefinder was broken. Other minor damage occurred to electrical and torpedo equipment. Fighting Efficiency - Impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLAISDALE 10th July,1943	Shell	6 days	GLAISDALE engaged in action an enemy force of torpedo boats and 'R' boats in the English Channel. Superficial damage only was sustained. Fighting Efficiency - Not impaired.
WENSLEYDALE 10th July,1943	Shell	17 days	WENSLEYDALE engaged in action an enemy force of torpedo boats and 'R' boats in the English Channel. The ship sustained superficial damage only. Fighting Efficiency - Not impaired.
MELBREAK 10th July,1943	One Direct Hit Shell	8 days	MELBREAK during an action with an enemy force of torpedo boats and 'R' boats in the English Channel sustained a direct hit on the bridge which caused considerable damage to the structure. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ESKIMO 12th July, 1943 D.N.C.4B/R264	One Direct Hit two Near Miss 250 kgm delay action fuzed Bombs	8½ months	ESKIMO, while operating in the Mediterranean at 20 knots, was attacked by enemy aircraft. The ship sustained a direct hit in way of the after oil fuel tanks, one near miss aft and one near miss abreast the bridge on the starboard side. The direct hit struck the upper deck 2½ ft. from the ship's side port, perforated the lower deck and burst in the after oil fuel tank (No.6). The lower deck over and bulkheads between and abaft Nos.5 and 6 oil fuel tanks were wrecked. A hole 12 ft. by 10 ft. was made in the after bulkhead of the gearing room. The ship's side structure abreast the after oil fuel tanks was buckled and perforated and the cabin flat above wrecked. The plummer block compartments were damaged. Immediate flooding of the after oil fuel tanks, plummer block compartments to the waterline in the gearing room and on the lower deck above Nos.5 and 6 oil fuel tanks including the warhead magazine, occurred. Minor flooding took place abaft this on the lower deck. An oil fuel fire started in the vicinity of Nos.5 and 6 oil fuel tanks. One forced lubrication pump and one fire and bilge pump in the gearing room were wrecked. The H.P. hydraulic supply to 'Y' mounting and the torpedo tubes was damaged. Cables to the fire control of 'X' and 'Y' mountings, port dynamo, port steering motor and other circuits were damaged. Fighting Efficiency - Seriously impaired. The ship was immobilised due to failure of the forced lubrication pumps. Oil fuel tanks and 50% of electrical equipment aft and 2nd W/T office were out of action. The after guns were in local control only.
NUBIAN 20th July, 1943	One Near Miss Bomb	Nil	NUBIAN, while at Malta during an air raid, sustained superficial damage to structure from a near miss. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TYNEDALE 9th Aug., 1943	Two Near Miss Bombs	6 weeks including A's and A's	TYNEDALE, while at anchor in Augusta Harbour during an air raid, had two near misses off the port quarter. The bottom plating of the port plummer block compartment was fractured and structure in the vicinity of the after oil fuel tanks and the after magazine (No.2) was strained and minor leaks caused. Some rivets of the internal structure were sheared. Contents of No.4 oil fuel tank were transferred because oil was leaking into the plummer block compartment. Bolts of the sliding feet of port and starboard H.P. turbines were slightly bent and minor failure of auxiliary machinery occurred due to shock. Bushes of the starboard stern tube were slightly out of alignment and overheating occurred. Depth charges on the upper deck were displaced. The Type 285 radar aerials were fractured and rendered unusable. Fighting Efficiency - Impaired. Maximum speed was reduced to 15 knots. The type 285 radar was out of action.
NUBIAN 10th Aug., 1943	Number unknown Near Miss Bombs	Nil	NUBIAN, while in Augusta Harbour, during an air raid, sustained minor damage from splinters from near misses. Fighting Efficiency - Not impaired.
LEDBURY 12th Aug., 1943	Number unknown Near Miss Bombs	Nil	LEDBURY, while escorting a convoy in the Mediterranean, sustained superficial damage from near misses. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EASTON 22nd Aug., 1943	Rammed submarine	11 months	EASTON, while operating in the Mediterranean at 20 knots, rammed an enemy submarine proceeding at 10 knots on the surface. EASTON rammed the submarine on the starboard side abreast the gun and the submarine rolled to port, hung on EASTON's bows for a few seconds and then slid under her bottom, bumping the ship in several places. The fore end structure from the keel to 3 ft. below the upper deck and for 28 ft. from the bow to 16 station, was torn away or buckled badly. Bulkhead 16 was destroyed below the lower deck and bulkhead 18 suffered minor damage. The port bilge keel was slightly buckled. The fore end to bulkhead 16 was open to the sea, and the spirit room was flooded. A forward oil fuel tank (No.2) was flooded, minor leaks occurred in the bilges at the fore end of the forward boiler room and slow flooding occurred in No.3 naval store, all due to the submarine bumping along the outer bottom plating. Both propellers, shafts and 'A' brackets were damaged. Fighting Efficiency - Seriously impaired. The ship proceeded on the port engine and maximum speed was also reduced by the "rudder" effect of the wreckage forward. Endurance was reduced by the loss of No.2 oil fuel tank.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ATHABASKAN (H.M.C.S.) 27th Aug., 1943 D.N.C.4B/R269	One Direct Hit radio controlled type H.S.293 delay action fuzed Bomb	2½ months including fitting of type 272	ATHABASKAN, while operating off the west coast of Spain at 23 knots, was attacked by enemy aircraft. A direct hit occurred on the edge of 'B' gun deck and superstructure, port side, which passed out through the starboard side of the superstructure and burst 8 to 12 ft. clear of the ship's side abreast the fore end of the bridge. The starboard side and decks from abreast 'B' gun to the foremast, above the waterline, were set inboard and pierced by splinters, and the starboard side of the superstructure and bridge was stove in. Flooding through splinter holes took place in 'B' shell room, Nos.1 and 3 oil fuel tanks, the torpedomen's mess and the low power and gyro room. Slow controlled flooding took place in the forward boiler room. The ship listed 12 degrees to starboard. Splinters caused minor fires between decks and a cordite fire in the ready use lockers of 'A' and 'B' guns. Blast from the bomb blew open the airlock doors in the boiler rooms and caused the fires to the steaming boilers to flash back into the boiler rooms, causing a minor oil fuel fire in No.2 boiler room. Speed was temporarily lost and the feed water was contaminated. Extensive splinter damage to important H.P. and L.P. circuits occurred and all lighting and power in and forward of the boiler rooms failed. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised but was later able to steam at 14 knots. 'A' and 'B' guns were in local control only and 'B' shell hoist was out of action. The main W/T, types 285, 291, 253 and 242 radar, director, rangefinder, torpedo fire control, depth charge hydraulic gear, starboard forward oerlikon and the gyro were out of action.
PUCKERIDGE 6th Sept., 1943	Two Contact Torpedoes fired from submarine	Sunk	PUCKERIDGE, while proceeding to Algiers at 20 knots, experienced a violent explosion aft which was followed 2 or 3 seconds later by a 2nd explosion of greater magnitude. The torpedoes struck the ship between the after bulkhead of the gearing room and the stern. The 1st explosion caused serious structural damage aft. The 2nd explosion caused much additional damage; the stern was blown off and the after end deck plating was wrapped over the searchlight platform. The gearing room and possibly the engine room were flooded rapidly. After the 2nd hit all electrical power failed. The ship settled by the stern and heeled about 10 degrees to port, both heel and trim increased rapidly. PUCKERIDGE sank about 6 minutes after being torpedoed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MENDIP 8th Sept., 1943	One Near Miss 250 kgm delay action fuzed Bomb	3 weeks	MENDIP was escorting a convoy to the Gulf of Salerno when a near miss detonated about 20 ft. off the port side abreast the forward boiler room. The port side plating and framing, abreast the engine room and boiler rooms was slightly distorted. The holding down bolts to the sliding feet of the port and starboard H.P. and L.P. turbines were fractured and distorted and the keep plates lifted. The holding down bolts of both boilers were distorted. Shock damage affected the turbo-generators and auxiliary machinery on the port side of the engine room. One diesel generator was seriously damaged. Shock effects also put the low power electrical supply temporarily out of action, causing failure of the main armament firing circuits. Shock damage put all radar and the gyro compass and Chernikeef log out of action. Fighting Efficiency - Seriously impaired. Damage to main machinery limited revolutions on the port engine to those for 8 knots and on the starboard engine to those for 20 knots. One diesel generator, several radar sets, the gyro compass and Chernikeef log were out of action.
LOYAL 9th Sept., 1943	One Direct Hit 3 inch Shell which did not detonate	Indeterminate (Repairs carried out at Bizerta in Oct. 1943. Completion date uncertain	LOYAL, while assisting in covering landing operations at Salerno, received a direct hit on the starboard side of the forward boiler room, about 3 ft. above the waterline. The shell perforated the ship's side and the bulkhead between the boiler rooms and came to rest without detonating in the tubes of No.2 boiler. The hole in ship's side was $3\frac{1}{2}$ inches diameter; the tear in the bulkhead between boiler rooms was 10 inches long. The shell cut eight low power multicore cables connecting the low power room and the engine rooms with the transmitting rooms and 'X' turret. Fighting Efficiency - Impaired. Speed was reduced to 24 knots due to the loss of No.2 boiler. 'X' turret was in local control; certain communications to aft were temporarily out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAFOREY 9th Sept., 1943 D.N.C.4B/R269	Five Direct Hit 88 mm. two were delay action fuzed and one direct action fuzed two did not detonate or were solid shot Shells	2 weeks	LAFOREY, while assisting in covering landing operations at Salerno, received 5 shell hits on the port side. Direct Hit on the ship's side, at the after end of forecastle just above the upper deck, detonated about 4 ft. inboard and caused minor damage to bulkheads and surrounding structure. Direct Hit on the ship's side at waterline, abreast the forward boiler room, detonated on impact causing a hole in the ship's side 3 ft. by 1½ ft. Splinters damaged boiler tubes, oil fuel transfer pipe, 20-ton pump and the ring main. Power to 'B' and 'X' turrets, main W/T office, radar, No.2 L.P. generator and some lighting circuits was temporarily lost. Water flooded into the forward boiler room as the ship heeled. Direct Hit on the coaming of the forward boiler room air casing, detonated in the boiler uptake. Splinters damaged the uptakes and air casings of Nos.1 and 2 boilers the steam drum of No.1 boiler, main steam pipe, firemain, boiler tubes, ringmain and the bulkhead between boiler rooms. Direct Hit on the depth charge rack under the after torpedo tubes was deflected through base of firework tank and passed overboard without detonating. Direct Hit on the searchlight platform also passed overboard without detonating. The searchlight platform and emergency conning position sustained minor damage. Fighting Efficiency - Seriously impaired. The forward boiler room was out of action and efficiency of the after boiler room impaired by a temporary loss of air pressure. Power to 'B' and 'X' turrets and some W/T and radar circuits was temporarily lost.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WINCHELSEA 12th Sept., 1943 D.N.C.4B/R287	Four Near Miss probably 250 kgm delay action fuzed Bombs	7 weeks	WINCHELSEA, while escorting a convoy in North Sea at 10 knots, was near missed by 4 bombs which all appeared to detonate about 12 ft. below the waterline. A near miss on starboard bow wrecked the bow structure from keel to just below the upper deck and forward of asdic compartment. The fore end was open to the sea which flooded the fore peak, S.A. compartment, chain locker and naval stores. Flooding in No.2 store and asdic compartment was controlled. Three near misses on port bow buckled and distorted hull plating below the waterline on the starboard side abreast the engine room and after boiler room, and on the port and starboard sides abreast the after oil fuel tank (No.3). Hull plating above the waterline on the starboard side was buckled in way of the after boiler room. Structure was strained and minor leaks occurred in way of the forward oil fuel tanks (Nos.1 and 2), forward magazine group, engine room and after boiler room. The after fuel tank (No.3) was contaminated and oil was transferred forward. A/S gear and the gyro compass were damaged. Fighting Efficiency - Seriously impaired. Speed was first reduced to 7 knots, to avoid risk of further damage to the bow, but was later increased to 10 knots. The gyro compass was out of action.
CLEVELAND 16th Sept., 1943	Several Near Miss Bombs	Nil	CLEVELAND, while on bombardment work off Salerno, was near missed by bombs from several aircraft, which caused only minor damage. Bolts through the sliding feet of the starboard L.P. turbine were fractured; those of the H.P. turbine were badly bent. Fighting Efficiency - Not seriously impaired except for high speed steaming.
ST. CROIX 21/22nd Sept., 1943	Two Torpedoes probably Acoustic Homing type fired from submarine	Sunk	ST. CROIX, while escorting a convoy in the North Atlantic at 15 knots, was hit by two torpedoes, the first of which struck the port side near the propellers. This was followed by a second torpedo after which the ship sank very quickly.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INTREPID 26/27th Sept., 1943	Two Direct Hit Bombs	Sunk	INTREPID, while at Port Laki, Leros Island, was hit by a bomb on the port side of the upper deck at the after end of the after boiler room (No.3), causing a hole 6 ft. by 3 ft. in the upper deck and 2 ft. by 3 ft. in the bulkhead between the engine room and boiler room. Splinters caused widespread serious damage. The ship's side was holed abreast the engine room and after boiler room and the port main steam pipe, oil fuel suction line, saturated steam line and No.3 boiler casing were all pierced. The after boiler room flooded to 3 ft. above the floor plates, and there was a minor diesel oil fire in the same compartment. The ship was towed to shallow water and temporary repairs commenced. Steam was made available in two boilers, the ship then being capable of 20 knots. Later, in a second attack, a further direct hit was scored aft near 'Y' gun. All the stern structure abaft 'X' gun was blown off. The ship settled by the stern with a 10 degree list to port and the forward end of the after superstructure awash. Four hours after the second attack the engine room was flooding through splinter holes. INTREPID capsized and sank 16 hours after the first attack.
All five destroyers were in action against 4 or 5 German Elbing Class Destroyers while on patrol off the north coast of Brittany.			
GRENVILLE	Direct Hit Shell	1 week	GRENVILLE was forced to retire from the action temporarily because of a fire started by a direct hit.
LIMBOURNE	Direct Hit Shell	2 days	LIMBOURNE was damaged by one direct hit and then returned to harbour having fired all her torpedoes.
ULSTER WENSLEYDALE TANATSIDE 4th Oct., 1943	"Shorts" Shell	1 month Nil Nil	The three remaining destroyers all received superficial damage from "shorts". Fighting Efficiency for all ships - Not seriously impaired.
PANTHER 9th Oct., 1943	One or two Direct Hit probably four Near Miss Bombs	Sunk	PANTHER, while operating in company with CARLISLE in the vicinity of Scarpanto Strait, in the Aegean Sea, was attacked by enemy aircraft and sustained a direct hit just abaft the funnel. The bomb probably exploded near the keel and broke the ship's back. Another bomb was a hit or very near miss, and together with probably four others, caused damage to the ship. PANTHER broke in two and sank.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAFOREY 13th Oct., 1943	Two Near Miss 250 kgm direct action fuzed Bombs	Nil	LAFOREY, while bombarding north of the Volturno River in company with LOOKOUT at 15 knots, was attacked by about twelve aircraft. Near misses caused minor damage. Fighting Efficiency - Not impaired.
LOOKOUT 13th Oct., 1943	One Near Miss 250 kgm direct action fuzed Bomb	Nil	LOOKOUT, while bombarding north of Volturno River at 18 knots in company with LAFOREY, was attacked by about twelve aircraft. One near miss caused slight damage. Fighting Efficiency - Not impaired.
KEPPEL October 1943	Rammed submarine	Not known	KEPPEL sustained damage to the bow structure as a result of ramming an enemy submarine. Fighting Efficiency - Slightly impaired.
HURSLEY (Now H.H.M.S. CRETE) 17th Oct., 1943	One Direct Hit 3.9 inch direct action fuzed Shell	Nil	HURSLEY, while operating in the Aegean Sea received a direct shell hit on the port side, just forward of 'A' gun, which detonated on impact about $3\frac{1}{2}$ ft. below the forecastle deck. This resulted in a hole in the ship's side, about 4 ft. by 3 ft. and other minor structural damage nearby. Splinters damaged the ship's starboard side, the forecastle deck, the forward oil fuel filling line and some minor electric leads. Two cartridges in the port forward ammunition chute were pierced by splinters and a cordite fire was started. This caused minor fires among clothing, hammocks and mess deck fittings. Fighting Efficiency - Slightly impaired. The port forward 4 inch ammunition chute was out of action.
HURWORTH 22nd Oct., 1943	One Contact Mine	Sunk	HURWORTH was assisting the Greek ship ADRIAS, off Leros in the Aegean Sea when a mine exploded on the starboard side just abaft the bridge, probably abreast the forward boiler room. The ship broke in two near the break of forecastle, and a serious oil fuel fire started. The fore end remained afloat for about 3 minutes and the after end for about 15 minutes.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIMBOURNE 23rd Oct., 1943	(i) One Contact Torpedo fired from E-boat (ii) Torpedo from our own forces	Sunk	LIMBOURNE was on patrol off the French coast, in company with CHARYBDIS when a torpedo struck the ship forward of the low power room. All fore end structure below the waterline, from just forward of the boiler rooms, and forecastle deck from forward of the bridge was blown away. The boiler room bulkhead was intact. The ship listed heavily to starboard. A minor fire started in the low power room. Steam temporarily failed due to contaminated oil fuel. When steam was raised all attempts to get under way proved unsuccessful; the ship turned in uncontrollable circles. The attempts to steam the ship were ultimately abandoned; she was taken in tow by TALYBONT but yawed badly, causing the tow to part. The after magazine and engine room were flooded deliberately and the ship abandoned. LIMBOURNE was finally sunk by a torpedo from TALYBONT.
ECLIPSE 24th Oct., 1943	One Mine in 48 fathoms	Sunk	ECLIPSE was carrying army reinforcements to Leros in the Aegean Sea when an explosion occurred under the starboard side of the ship near the forward boiler room. A serious fire started in the bridge structure, probably fed by oil fuel from the forward galley tank. This caused the explosion of ready use ammunition at the starboard forward oerlikon and possibly at 'B' gun. The ship quickly took a heavy list to port which steadily increased until she lay on her beam ends and finally sank bows first about 5 minutes after being hit. Before sinking ECLIPSE was seen to break in two abreast the bridge.
BELVOIR 30th Oct., 1943	One Direct Hit Bomb which did not detonate	Nil	BELVOIR was operating off Castelloriso, in the Aegean Sea, when a bomb hit and penetrated to the stabiliser compartment but failed to detonate. The bomb was removed from the ship and thrown overboard. Fighting Efficiency - Not impaired. After removal of the bomb the ship proceeded under her own power at 23 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROCKWOOD 11th Nov., 1943	One Direct Hit Radio Controlled Glider Bomb type H.S.293 which did not detonate	Indeterminate (Ship placed in Reserve)	ROCKWOOD was operating in the Aegean Sea at 24 knots, when a radio controlled bomb hit the port side of the upper deck at the after end of the gearing room. It perforated the upper deck platform, ploughed diagonally across the after bulkhead of the gearing room and passed out through the starboard side at lower deck level without detonating. The hole in the upper deck was 5½ ft. by 2¼ ft., and that in ship's side 5¾ ft. by 3¾ ft. The gearing room, starboard oil fuel tank (No.3) and starboard lower deck crew's space flooded, causing the ship to list 8 to 10 degrees to starboard. The after switchboard was damaged and various electric leads were cut. Power failed and essential services were supplied by diesels. When the forced lubrication pumps flooded, the gearing room was abandoned and the main engines had to be shut down. Fighting Efficiency - Severely impaired. The ship was immobilised through failure of the forced lubrication system, which necessitated shutting down main engines. REMARKS This incident emphasised the need for adaptors to be supplied so that 3½-inch bronze fuelling hose can be used in an emergency as additional suction hose for the 70-ton portable pump - A.F.O.5580/44 refers.
DULVERTON 13th Nov., 1943	(i) One Direct Hit Radio Controlled Glider Bomb type H.S.293 (ii) Torpedo from own forces	Sunk	DULVERTON was operating in the Aegean Sea at 22 knots when a bomb struck the ship on the port side abreast the bridge. The bow structure forward of the bridge was torn away. The ship settled by the bow and was on fire from end to end. DULVERTON was finally sunk by torpedo from own forces 1¾ hours after the bomb hit.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUAIL 15th Nov., 1943 D.N.C.6/R303	One Non Contact probably type G.C. charge 1500 lbs. Mine in 8 fathoms	Indeterminate (Ship not repaired)	QUAIL was entering Bari harbour at 5 knots when an explosion occurred under the propellers to port of the middle line, as a result of which the after end structure was blown bodily upwards and forced forward. Major structural damage extended to the after bulkhead of the gearing room. There were large fractures in the hull plating between the upper and lower decks on both sides abreast the magazines and steering compartment and deep buckles around the main hull at the after end of the boiler rooms. The engine room bulkheads were slightly damaged. The compartments abaft the gearing room, including after oil fuel tanks, magazines and steering compartment flooded to the waterline. There was controlled flooding in the gearing room, and minor leakage into the after boiler room. All turbine feet were fractured; both shafts were bent and their propellers damaged. The after boiler room had to be shut down due to damaged bulkhead main steam valves. Auxiliary machinery suffered various minor defects. The starboard turbo-generator and both steering motors were severely damaged. 'Y' mounting and the after depth charges were blown overboard; 'X' mounting was severely damaged and the after torpedo tubes were displaced. Shock severely damaged the gyro compass, radar and W/T equipment. Fighting Efficiency - Severely impaired. The ship was immobilised by damage to shafts and main engines. 'Y' mounting was lost overboard. 'X' mounting, the after torpedo tubes, and radar and gyro compass equipment were out of action.
LOYAL 19th Nov., 1943	One Direct Hit probably 3 inch direct action fuzed Shell	Nil	LOYAL, while intercepting an enemy convoy off the east coast of Italy, was fired on by shore batteries, which obtained one direct hit on the port side forward, abreast the paint shop at upper deck level. This hit caused a hole in the side plating 24 ins. by 12 ins. and minor splinter damage nearby. Fighting Efficiency - Not impaired.
QUILLIAM 19th Nov., 1943	Six Direct Hit 40 mm. and 20 mm. Shell	Nil	QUILLIAM, while intercepting an enemy convoy off the east coast of Italy, received six direct hits above the waterline on the port side of the after end, which caused only minor damage. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WINCHELSEA 21st Nov., 1943	One Near Miss Radio Controlled Glider Bomb type H.S.293 direct action fuzed	17 days	WINCHELSEA was escorting a convoy in the North Atlantic at 13 knots when a glider bomb was shot down by close-range weapons and detonated on contact with the water about 50 yards off, abreast the port side. No.3 port and centre oil fuel tanks were strained and leaking. Other minor hull damage and leaks probably resulted from local weaknesses left after the repair of bomb damage sustained on 12th September, 1943. A temporary failure of electrical power resulted when the port H.P. supply breaker opened owing to shock. Training gear of the type 291 radar aerial was out of alignment. Fighting Efficiency - Not seriously impaired. Endurance was reduced through contamination of two after oil fuel tanks.
ZETLAND 2nd Dec., 1943	(i) One Near Miss 500 kgm Bomb (ii) Explosion of two near by Merchant Ships	6 weeks	ZETLAND, while alongside BICESTER at Bari harbour during an air raid, was damaged by splinters, blast and debris from the explosion of two nearby merchant ships containing ammunition and petrol, and from a near miss bomb which detonated off her port quarter. The forward and after superstructure, forecastle deck, funnel, gun shields and W/T and radar aerials were damaged to varying extents. The port propeller was damaged by the near miss bomb and the tail shaft was forced slightly out of alignment. Electrical power was temporarily lost when the main breakers were opened by shock. The director was stiff to train owing to splinter and blast damage. Fighting Efficiency - Seriously impaired. The port engine had to be shut down owing to vibration. Efficiency of the director and radar and W/T equipment was reduced by damage.
BICESTER 2nd Dec., 1943	(i) One Near Miss 500 kgm Bomb (ii) Explosion of near by Merchant Ships	6 weeks	BICESTER, while alongside ZETLAND at Bari harbour during an air raid, was damaged by splinters, blast and debris from the explosion of two nearby merchant ships, containing ammunition and petrol, and a near miss bomb which detonated about 30 yards off her port quarter. Blast and splinters damaged the ship's side, upper and forecastle decks, topsides and fittings; the fore yard arm was broken and several ready use lockers holed and distorted. Electrical power was temporarily lost when the main breakers opened by shock. The main armament was in local control owing to damage to the director and blast damage to electric circuits and telephones generally. The air pressure in the after boiler room was lost through a damaged air lock door. Fighting Efficiency - Seriously impaired. Maximum speed was reduced to approximately 22 knots through loss of air pressure in the after boiler room. The main armament was in local control only. Types 285 and 271 radar and the gyro compass were out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOLDERNESS 5th Dec., 1943 D.N.C.4B/R272	One Non Contact Mine in 17 fathoms charge about 90 lbs.	6 months	HOLDERNESS was escorting a convoy off Cromer at 11½ knots when an explosion occurred under or immediately abaft the stern. The after end was lifted and the side plating, framing and decks, abreast the after magazines and steering compartments, from the keel to the upper deck were severely buckled. Whipping also caused buckles abreast the after boiler room and bridge and between after oil fuel tanks. The rudder was blown away. There was minor controlled flooding in the steering compartment, after magazine (No.3) and after boiler room. The after oil fuel tanks were contaminated by sea water. Both steering motors were put out of action. One holding down bolt on the after 4 inch gun fractured and the depth charge trap was distorted. Shock damaged W/T aerials. C.S.A. smoke filled the after compartments and prevented an immediate assessment of damage. Fighting Efficiency - Seriously impaired. The ship was able to proceed at 15 knots steered by her main engines. Endurance was reduced by the contamination of the after fuel tanks. REMARKS This incident emphasised the need for:- 1. Carley floats stowed abreast the after superstructure in Type 1 Hunts to be repositioned to allow movement of the portable diesel pump along the upper deck. 2. Increasing the supply of hand saws to destroyers and below. This was approved, A.F.O.2263/44 refers. 3. Fitting of rigid resilient mountings to steering motors and pumps. This was approved C.A.F.O.2724/44 refers.
HOLCOMBE 12th Dec., 1943 D.N.C.N6/BR331	Probably an Acoustic Homing Non Contact Torpedo fired from submarine	Sunk	HOLCOMBE was escorting a convoy in company with TYNEDALE in the Mediterranean when a torpedo exploded at the after end near the after oil fuel tanks with a large burst of bright flame. The after bulkhead of the engine room was blown in; the ship settled rapidly by the stern, listed to port until on her beam ends and sank almost vertically with her bows in the air, four and a half minutes after being hit. It is considered that all or part of the cordite in the after magazine burned and vented through the decks.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TYNEDALE 12th Dec., 1943	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	TYNEDALE was escorting a convoy in company with HOLCOMBE in the Mediterranean at 5 knots when a torpedo hit the ship on the port side abreast the funnel. TYNEDALE broke in two, the bow portion rolling to port and quickly sinking, midships end first. The stern floated for a short time before sinking.
WORCESTER 23rd Dec., 1943 D.N.C.N6/R302	One Moored Non-Contact Mine probably type G.R. Charge 90 lbs. in 8 fathoms	Indeterminate (Ship not repaired)	WORCESTER was escorting a convoy in the North Sea at 15 knots when an explosion occurred under the stern. The stern structure abreast and abaft the after magazines was extensively buckled, particularly on the starboard side. The bottom plating was split in several places and torn away from the counter over a length of 15 ft. Two deep buckles girthed the ship abreast the gland compartment and the after magazines. Minor damage extended to the after end of the engine room. The stern dropped until the upper deck aft was 5 ft. under water. Practically all compartments abaft the engine room, including all the after oil fuel tanks, the gland compartment, after magazines and steering compartment flooded to the waterline. The ship listed, first to port but later to starboard a maximum of 10 degrees. The peace tanks and forward oil fuel tanks were counterflooded, and heavy weights were jettisoned from aft to reduce heel and trim. The steering gear was wrecked, one blade of the starboard propeller was blown away, and some machinery suffered shock damage. The type 272 radar equipment was also slightly damaged by shock. The stern depth charge trap was distorted. Fighting Efficiency - Severely impaired. The ship was immobilised owing to distortion of both shafts. The after 4.7 inch gun could not be fired for fear of increasing the structural weakness at the after end.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HURRICANE 24/25th Dec., 1943	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	HURRICANE was operating in the North Atlantic at 19 knots when a torpedo struck at the after end near the steering compartment. About 30 ft. of the stern structure was blown away and a zone of serious damage extended forward of this for a further 25 ft. The quarter deck was blown upwards at its after end to an angle of about 45 degrees, the compartments below including the after magazine and shell rooms and lower deck cabin spaces being open to the sea for about 22 ft. The warhead magazine and gland spaces flooded slowly. The ship heeled 5 to 10 degrees to port. During the night heavy weights, such as depth charges and torpedoes, were jettisoned in order to lighten the ship and reduce the list, and oil fuel was transferred from aft. Immediately after the hit the main engines stopped and the ship was immobilised. Both the port and starboard gear cases were fractured but otherwise main and auxiliary machinery suffered little major damage. Electrical power failed at the after end but secondary lighting functioned correctly. It was finally decided to sink the ship, and she was abandoned; all hatches, flood valves, seacocks, etc., had been opened. HURRICANE listed to port and sank by the stern 17¼ hours after the attack.
SAUMAREZ 26th Dec., 1943 D.N.C.N6/BR313	One Direct Hit 11 inch Shell which did not detonate "Shorts" from direct action fuzed Shells	2½ months	SAUMAREZ, while in action against the SCHARNHORST at 32 knots, received a direct hit on the director control tower, which passed through the tower and overboard without detonating. A number of shorts fell close to the starboard side and detonated on impact with the water, causing extensive splinter damage to the hull and superstructure above the waterline. There was minor flooding through splinter holes into the engine room bilges. One forced lubrication pipe was punctured by a splinter and the starboard engine room supply fan was damaged. There was other less important splinter damage to machinery. Splinters also damaged the electric leads of one steering motor and other circuits. A minor fire was started by escaping oil and damaged electric leads. One splinter pierced and set off a smoke float, the fumes of which were drawn down into the after messdeck; the after magazine and shell rooms were flooded owing to the impression of a fire burning. Splinters also caused serious damage to radar offices; the rangefinder and gun armament were also affected and W/T aerials were brought down. Fighting Efficiency - Seriously impaired. The starboard engine was put out of action by splinter damage to the forced lubrication system. The ship proceeded on the port engine. All radar sets, the director control tower, and one steering motor, were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
JERVIS 23rd Jan., 1944	One Near Miss Radio Controlled Glider Bomb type H.S.293	2½ months	JERVIS was operating in the Mediterranean, west of Naples, in company with JANUS, when a glider bomb passed through and detonated near the fore end, blowing away 20 ft. of the bow structure above and including the upper deck. Below the upper deck the fore end was bent 75 degrees to port. Between the keel and forecastle deck for 50 ft. abaft the bow, the hull structure was buckled and distorted. About 55 ft. of the fore end including Nos.1 and 2 central stores, the fresh water tank and the provision room, was open to the sea. The cooling unit of the forward guns was temporarily out of action due to a fracture in the fire main. Fighting Efficiency - Seriously impaired. Speed reduced to 5 knots, (later increased to 7 knots) owing to weakness of the bow structure.
JANUS 23rd Jan., 1944	One Torpedo dropped by aircraft	Sunk	JANUS was operating in the Mediterranean at night, west of Naples, in company with JERVIS at 9 knots, when the ship was torpedoed on the port side abreast the bridge near 'B' magazine. Within a short time of being hit the bow broke away and floated down the starboard side. The bridge structure was partly missing after the explosion and the remainder was wrecked. Only one explosion was heard and it was reported that 'B' magazine, possibly together with 'A' magazine, exploded, but there is no definite evidence to support this suggestion. JERVIS, who took avoiding action, heard the explosion and saw a "sheet of flame" which may have been the flash of the detonation when the torpedo struck JANUS. The secondary lighting did not function completely. The ship rapidly settled by the bow with a heavy list to port, and sank within 7 or 8 minutes of being hit.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
OBDURATE 25th Jan., 1944 D.N.C.N6/BR316	Probably an Acoustic Homing Non Contact Torpedo fired from submarine	14 months	OBDURATE was escorting a Russia bound convoy, at 11 knots, when a heavy underwater explosion occurred about 20 ft. off the starboard side and abreast the after torpedo tubes. It dished the starboard hull plating between frames, stringers and longitudinals abreast the engine and gearing rooms. The upper and lower decks and bulkheads near the after oil fuel tanks were buckled and strained. Minor flooding in the engine room and gearing room, and leakage from the after oil fuel tanks into the gearing room was controlled. The starboard plummer block and gland space and shaft tube filled with oil fuel. All the starboard H.P. turbine feet and the after feet of the L.P. turbine fractured. The gearcase also cracked. Shock damage to auxiliary machinery put the starboard main and auxiliary circulators and the 10 Kw. auxiliary generator out of action. The starboard plummer block was distorted. After the damage the port main engine developed vibration. The electrical equipment suffered minor unimportant shock damage. Both twin 0.5 inch machine gun mountings were distorted. Fighting Efficiency - Seriously impaired. With the starboard main engine out of action the maximum speed was reduced to 16 knots. Both 0.5 inch machine guns were out of action.
HARDY 2nd 30th Jan., 1944	(i) Probably one possibly two Acoustic Homing Torpedoes fired from submarine (ii) Torpedo from own forces	Sunk	HARDY was escorting a convoy off the north coast of Norway, at 20 knots, when an explosion occurred at the after end, and as a result the ship quickly trimmed by the stern and heeled 5 to 10 degrees to starboard. A survey of the damage revealed no water in the engine room but the gearing room and possibly all compartments abaft this were flooded. The port engine had stopped but the starboard engine was racing, probably because the shaft was broken. Both turbo-generators were running but only the port one was on 'load'. About 3 minutes after the ship had been hit a second violent explosion occurred, either due to the after magazine blowing up or to a second torpedo hit. The ship first righted herself and then heeled 5 to 10 degrees to port. The machinery spaces were closed down and the "abandon ship" ordered. HARDY was sunk by a torpedo fired from one of the ships in company.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LOYAL 9th Feb., 1944	One Direct Hit probably 88 mm. direct action fuzed Shell	6 weeks including refit	LOYAL was being engaged by shore batteries off Anzio when a shell hit and detonated on the upper deck, starboard, above the after end of the engine room, about 6 ft. in from the ship's side, producing a hole some 18 inches square and piercing surrounding structure by splinters. The forced lubrication system of the starboard engine was holed by five splinters. Electric leads to the torpedo tubes and to one steering motor, and minor electric circuits, were cut. The fire main was fractured causing a temporary loss of cooling water to 'X' turret. The H.P. air line to this turret was also severed. The torpedo tubes were damaged and their roller paths were distorted, reducing the training arcs. Fighting Efficiency - Seriously impaired. The starboard main engine and one steering motor were out of action. The ship proceeded at 20 knots. The arcs of training the torpedo tubes were reduced.
PALADIN 12th Feb., 1944	Rammed submarine	5 months including refit	PALADIN, while operating in the Indian Ocean, rammed a submarine. As a result the ship's starboard side plating was torn for about 80 ft., from abreast the engine room to the after magazine, probably by the submarine's hydroplane. The tear was about 9 ft. below the upper deck and of maximum width 2 ft. The engine room, gearing room, gland spaces, after magazine and starboard after oil fuel tanks all flooded uncontrollably. Fighting Efficiency - Seriously impaired. The ship was immobilised by flooding of the engine room and gearing room.
WARWICK 20th Feb., 1944	Probably a Torpedo fired from submarine	Sunk	WARWICK was on anti-submarine patrol off Falmouth at 12 knots when a torpedo hit at the after end probably near the after magazine. The first explosion was followed 4 seconds later by another which was accompanied by a burst of orange red flash and flame. The ship broke in two near the after oil fuel tanks. The after end floated for a short time in a vertical position with the stern above water; the fore end remained for about 5 minutes with a list of 3 to 4 degrees to port, and then quickly capsized to port and sank by the stern, probably because the after bulkhead of the engine room collapsed. During the period that the fore end remained afloat oil fuel fires at the after end of the upper deck were controlled. Evidence indicated that the after magazine and/or warhead magazine blew up about 4 seconds after the first explosion.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
INGLEFIELD 25th Feb., 1944	One Direct Hit and possibly one Near Miss Radio Controlled Glider Bombs type H.S.293	Sunk	INGLEFIELD was operating near Anzio anchorage, at 20 knots, when a bomb struck on the starboard side abreast the after superstructure. This was followed by a second explosion, thought to have been caused by a near miss from a second glider bomb. A large hole was torn in the ship's side at waterline level from the after superstructure to abreast the foremost torpedo tubes, leaving the engine room open to the sea. The searchlight platform, starboard depth charge throwers and after torpedo tubes were blown overboard. The ship was immobilised, quickly listed to port and settled by the stern. After a time the list partially corrected itself but the ship continued to settled until the stern rested on the bottom. INGLEFIELD remained like this for about three quarters of an hour, while steadily sagging amidships, until she finally sank.
MAHRATTA 25th Feb., 1944	One possibly two Acoustic Homing Torpedoes fired from submarine	Sunk	MAHRATTA, while screening a convoy in Northern waters, at 12 knots was hit in the neighbourhood of the propellers by a torpedo. A slight shock was felt and both engines stopped immediately. Further damage was caused by a much heavier explosion, probably a second torpedo. This torpedo possibly blew off the stern, and flooded all compartments as far forward as, and including the gearing room, and possibly the engine room. The ship took a heavy list to port and rolled slowly over to port and sank by the stern.
LAFOREY 30th March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	LAFOREY was operating in the Mediterranean, at 6 knots, when a torpedo struck the port side abreast the forward boiler room. The director was displaced. The secondary lighting did not function. LAFOREY broke her back and quickly settled amidships, the bow and stern rising steeply. Within 2 minutes of the explosion both halves had disappeared.
SOUTHDOWN 13th April, 1944	Several Direct Hit Shells	8 days	SOUTHDOWN was operating in the English Channel when she received several shell hits in the side above the waterline. One after oil fuel tank was holed below the waterline and flooded. An auxiliary steam pipe in the after boiler room was cut and the deck over badly holed. The transmitter of the type 291 radar was wrecked. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASHANTI ATHABASKAN (H.M.C.S.) HAIDA (H.M.C.S.) HURON (H.M.C.S.) 26th April, 1944	Shell	≋ 3 weeks Nil Nil ≋ 11 days ≋ including collision repairs	ASHANTI, ATHABASKAN, HAIDA and HURON were in action with 3 or 4 German destroyers, believed to be of the ELBING class, off the French coast near the Ile de Batz. All ships sustained minor shell damage. ASHANTI and HURON suffered collision damage whilst reforming to return to port. Fighting Efficiency of all ships - Not seriously impaired.
ATHABASKAN (H.M.C.S.) 29th April, 1944	One possibly two Torpedoes fired from destroyer	Sunk	ATHABASKAN was in action against German Destroyers of the ELBING class off the north coast of France when a torpedo struck the ship in the vicinity of the gearing room, starting a serious fire probably of oil fuel from the after tanks. The ship stopped with a slight list to port. All efforts to get the fire under control were unsuccessful. A heavier and more violent explosion than the first occurred in or abaft the engine room. This explosion was caused either by a second torpedo hit or the explosion of the after magazine. ATHABASKAN sank by the stern shortly afterwards.
OFFA 4th May, 1944	One Direct Hit one Near Miss with Bombs	1 month	OFFA, while on patrol in the English Channel, sustained one direct hit and a near miss. Damage was of a superficial nature only. Fighting Efficiency - Slightly impaired.
TANATSIDE 17/18th May, 1944	One Direct Hit 40 mm. direct action fuzed Shell	2 days	TANATSIDE was in action against E-boats when a 40 mm. shell hit at the level of the Wheelhouse deck in the Commanding Officer's sea cabin. The shell detonated on impact and made a hole in the deckhead 10 ins. by 8 ins. There was slight damage to ventilation trunking and lighting circuits around the burst. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WRESTLER 6th June, 1944	One Moored Contact type G.R. charge 90 lbs. Mine in 14 fathoms	Indeterminate (Ship not repaired)	WRESTLER was operating in the English Channel when a mine exploded under the bottom abreast the forward oil fuel tank (No.1). The hole in bottom was approximately 12 ft. long by 9 ft. wide and buckling and distortion of the hull plating extended for 50 ft. abreast No.2 store and asdic compartment forward of the explosion and the 4-inch magazine and shell room abaft of it. The hull plating abreast the after oil fuel tank (No.3) was buckled and split. Immediate flooding occurred in two forward oil fuel tanks (Nos.1 and 2), the asdic compartment and No.2 store, 4-inch magazine and shell room and the after oil fuel tank (No.3). The one remaining forward oil fuel tank was contaminated. Freeboard was reduced to 2 ft. at the break of forecastle. Fires were started by flash in the vicinity of the explosion; there was a serious fire in the galley flat and fore messdeck and oil in the forward tank (No.1) was thought to have ignited. The forward magazine flooding gear was damaged and put out of action. There was minor damage to electrical equipment and the low power supply failed due to flooding. The gyro compass and radar equipment were damaged by shock; the A/S, E/S, S.A. and W/T equipment were damaged and/or flooded. Fighting Efficiency - Seriously impaired. Speed was reduced to a maximum of 6 knots. The forward magazine group was flooded. Radar, W/T, A/S, E/S and S.A. gear were out of action. The gyro compass was temporarily out of action.
ONSLOW 6/7th June, 1944	One Near Miss Bomb	Nil immediately (see later action on Page 258)	ONSLOW was damaged when a near miss bomb burst underwater abreast the after end on the port side. The after end structure, was generally strained on the port side. Bulkheads of the after port side oil fuel tanks were strained and leaking and the tanks were made common. There were oil fuel leaks into the port plummer block compartment. The after magazine, shell room and spirit room were strained and leaking. The cover joints of both main thrust blocks were sprung which resulted in the loss of lubricating oil. The electric leads of starboard steering motor, Evershed system and lighting circuits were damaged. Fighting Efficiency - Impaired. These defects were not at first apparent and were only revealed as a result of steaming at high speeds.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TARTAR 9th June, 1944	One possibly Two Direct Hit Shells	2 weeks	TARTAR, while in action against German destroyers (probably 3 NARVIKS and 1 ELBING), in the vicinity of Ile de Batz received a direct hit at the base of foremast. Ready use oil drums stowed on upper deck were pierced by splinters and a fire started at the base of the mast. The ship also sustained some other damage including the lattice foremast which was bent to starboard just below the heel of top mast, possibly due to a second hit. Fighting Efficiency - Impaired. REMARKS This incident emphasised that when large quantities of special mineral lubricating oils must be carried for operational needs the bulk should be stowed as a reserve in the paint store where spraying arrangements are fitted - A.F.O.203/45 refers.
BOADICEA 13th June, 1944	One Torpedo dropped by aircraft	Sunk	BOADICEA, while escorting a convoy in the English Channel, at a speed of 10 knots, sustained a torpedo hit abreast the bridge. About 2 seconds after the first explosion there was a second and more violent explosion reported to have been the forward magazine blowing up, but there is no definite confirmatory evidence. The ship listed to starboard and settled by the bows. All structure forward of the engine room was wrecked. The ship sank bow first in about 3 minutes.
TALYBONT 17th June, 1944	One "Short" 170 mm. Shell	6 days	TALYBONT, while on patrol off Cherbourg, at a speed of 12 knots, was damaged by a "short" of the third salvo fired by a shore battery, which detonated about 12 ft. away from the starboard side of the after boiler room. This caused extensive but minor splinter damage to the ship's side above waterline and the topsides from abreast the after boiler room to 'A' gun. The main steam pipe in the after boiler room was cut and numerous electric leads were severed. The after boiler room was evacuated due to escaping steam. A minor electrical fire occurred in the after boiler room. Types 291 and 285 radar were damaged. Fighting Efficiency - Seriously impaired. The after boiler room was out of action; ship returned to port at 18 knots on one boiler. Types 291 and 285 radar were out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ONSLOW 18th June, 1944	One Torpedo which did not detonate dropped by aircraft	5 days including damage sustained on 7th June, 1944	ONSLOW, while operating in the English Channel in support of the Normandy landings, was attacked by a torpedo-carrying aircraft. One torpedo struck the ship on the starboard side, forward of 'A' gun, but failed to detonate. The side frame at 20 station was slightly buckled between the 5th and 6th longitudinals and laps of hull plating in the vicinity were strained. Fighting Efficiency - Not impaired.
FURY 21st June, 1944	One Ground Mine	Indeterminate (Ship not repaired)	FURY was operating off the Normandy beaches, at 7 to 12 knots, when a mine exploded near the after end of the engine room. Extensive structural damage occurred. The hull plating and internal structure abreast machinery spaces, and the forward and after magazines and oil fuel tanks were strained and leaking. The forward and after magazines and oil fuel tanks slowly flooded and were made common by the internal damage. Water and oil fuel leaked from after tanks into the engine room. The ship listed 6 degrees to starboard. Structural damage to boiler bearers and feet resulted in the boiler drums being severely strained. All boilers were shut down and steam was lost due to leakage of boilers, loss of feed water and a fractured auxiliary pipe in the forward boiler room. The main engines were stopped after one minute owing to both circulators being out of action, loss of vacuum and the compartment being untenable due to escaping steam. Main and auxiliary machinery castings were extensively damaged. Steam was raised in No.3 boiler with salt water feed. Flooding in the engine room was controlled at 6 ft. but efforts to use the main engines failed. The engine room and boiler room were closed down. All W/T sets were out of action due to the loss of main aerials when the foremast snapped. The ship was immobilised and anchored. Efforts were made to tow the ship to sheltered water but the tow parted owing to adverse weather conditions and further damage was sustained by collision with other anchored vessels. FURY grounded on a rocky beach, broadside on, and sustained further extensive damage by pounding from heavy seas.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SWIFT 24th June, 1944	Probably One Ground Mine in 10 fathoms	Sunk	SWIFT was operating off the Normandy beaches, at 9 knots, when an explosion occurred under the forward boiler room. The ship immediately broke her back, heeled slightly to port and settled amidships until the funnel was submerged with the bow and stern above water. SWIFT remained in this condition for some time. The crew abandoned her, and as the tide rose she gradually settled and finally sank about one hour later.
ESKIMO 28th June, 1944	Direct Hit Oerlikon Shells	2 days	ESKIMO, while engaging enemy trawlers off the French coast, sustained a number of hits from close range Oerlikon fire. One shell detonated in the engine room and caused minor damage. Other hits damaged the tubes of No.3 boiler and cut some auxiliary steam pipes. One dynamo and the steering motor were damaged. Fighting Efficiency - Temporarily impaired. Nos. 2 and 3 boilers, one dynamo and the steering motor were temporarily out of action. Speed was reduced to 4 knots, for about 20 minutes.
ISIS 20th July, 1944	Mine or Torpedo probably the former	Sunk	ISIS was on anti-submarine patrol off the Normandy beaches when a large explosion occurred abreast the starboard side of the forward boiler room and was followed almost immediately by two other explosions. There was a large hole in the port side in the vicinity of the bridge; the bow structure was badly damaged and turned to port and there was a split in the starboard ship's side abreast 'B' gun deck. After the explosion, the ship trimmed by the bow, took a heavy list to starboard and almost immediately the deck was awash. A fire broke out in the forward galley. ISIS sank bows first in about 20 minutes. Surviving members of the crew were of the opinion that the explosions were caused by mines.

DESTROYERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORESTER 22/23rd July, 1944	Two Direct Hit Shells from shore battery. Six Direct Hit Bofors Shells Numerous Direct Hit Oerlikon Shells	2 weeks	FORESTER, while in action against R-Boats off the French coast, was attacked by shore batteries and sustained two direct hits which damaged the protective plating and ready-use lockers on 'X' gun deck. Six hits were also sustained from Bofors shell two of which perforated the ship's side above the waterline. Many hits were scored by Oerlikon shell. The majority of the damaged caused by the above hits was at deck level which affected only gun-shields, ready-use lockers, carley floats, and weather deck fittings. Fighting Efficiency - Slightly impaired.
GOATHLAND 24th July, 1944	One Ground Mine in 17 fathoms charge about 1600 lbs.	Indeterminate (Ship not repaired)	GOATHLAND was on patrol off the coast of Normandy, at 11 knots, when an explosion occurred under the ship near the after magazine. This resulted in minor corrugation of the hull plating between frames for two-thirds of the length of the ship and widespread, but not severe, internal damage to structure. The after magazine and one after oil fuel tank were flooded and minor oil fuel leaks occurred in adjacent compartments. The ship heeled to starboard a maximum of 11 degrees. Extensive shock damaged occurred to main and auxiliary machinery; chocks under the sliding feet of L.P. turbines and gear cases were fractured; boiler feet were distorted and turbo generators extensively damaged. Both shafts were bent and eventually seized. The torpedo tubes jammed off their roller paths. Shock also damaged W/T equipment, director, gyro-compass and radar equipment. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged main engines and bent shafts. The torpedo tubes and type 291 radar were out of action.
QUALITY 25th July, 1944	One Direct Hit Shell	Nil	QUALITY was taking part in the bombardment of Sabang when a shell from a shore battery hit the fore rigging and put the W/T and R/T temporarily out of action. Fighting Efficiency - Not seriously impaired.
QUILLIAM 25th July, 1944	One Direct Hit Shell	Nil	QUILLIAM, during the bombardment of Sabang, was hit aft by a shell from a shore battery. Slight damage was caused. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
QUORN 3rd Aug., 1944	Probably a Human Torpedo	Sunk	QUORN was operating in the British Assault Area off the Normandy beaches, at 8 knots, when a tremendous explosion occurred on the starboard side amidships. The whole of the starboard side of the midship section abreast the funnel was destroyed. The ship immediately took a 40 degree list to starboard and within a minute was on her beam ends, but within 1¾ minutes of the explosion had righted herself to a 50 degree list and had broken in two amidships. Both ends of the ship were observed to sink rapidly until about 30 ft. of the stern and 15 ft. of the bows were above water. REMARKS This incident emphasised the need to fit, in HUNT Class destroyers, an additional escape scuttle in the ship's side immediately abaft the collision bulkhead, to enable trapped personnel to escape.
BLENCATHRA 3rd Aug., 1944	One Human Torpedo	3 months including refit	BLENCATHRA was hoisting a human torpedo on board when the scuttling charge blew up. The ship sustained minor damage and one feed tank was put out of action. Fighting Efficiency - Impaired.
HAIDA (H.M.C.S.) 6th Aug., 1944	Shell	Nil	HAIDA while attacking an enemy convoy off St. Nazaire, was superficially damaged by shellfire. Fighting Efficiency - Not impaired.
ST. LAURENT (H.M.C.S.) 8th Aug., 1944	One Near Miss Radio Controlled Glider Bomb type H.S.293	9 days	ST. LAURENT, while operating off the west coast of France, sustained a near miss by a glider bomb. No hull damage was sustained but the circulating pump and one boiler room fan were put out of action. The gyro compass was damaged and 'A' gun was subsequently only 25% efficient. Fighting Efficiency - Not seriously impaired. The ship was able to remain at sea temporarily on operational duties.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASSINIBOINE (H.M.C.S.) 12th Aug., 1944	One Direct Hit 40 mm. Shell	4 days	ASSINIBOINE attacked an enemy convoy whilst operating off the west coast of France. She was hit by one shell which detonated in the engineer's workshop and caused minor damage. Fighting Efficiency - Not impaired.
ALBRIGHTON 12th Aug., 1944	"Shorts" Shell	Nil	ALBRIGHTON, while attacking an enemy convoy off the west coast of France, suffered superficial splinter damage. Fighting Efficiency - Not impaired.
SAUMAREZ 14th Aug., 1944	One Direct Hit 4.1 inch direct action fuzed Shell Several Direct Hit 37 mm. and 20 mm. Shells	10 days	SAUMAREZ was patrolling off the Channel Islands in company with ONSLAUGHT, at 25 knots, when a shell detonated in the after boiler room fan intake space on the starboard side. The resulting splinter damage was generally of a minor character but both engine room and two boiler room supply fans were severely damaged. Superficial damage was caused by hits from 37 mm. and 20 mm. shell. Fighting Efficiency - Slightly impaired. Speed was temporarily reduced to 20 knots but full speed was soon regained.
ONSLAUGHT 14th Aug., 1944	Several Direct Hit 20 mm. Shells	Nil	ONSLAUGHT was patrolling off the Channel Islands in company with SAUMAREZ, at 25 knots, when she received several hits with 20 mm. shell. Only superficial damage resulted. Fighting Efficiency - Not impaired.
MELBREAK 23rd Aug., 1944	One Direct Hit 37 mm. delay action fuzed Shell	Nil	MELBREAK was in action with R-boats off the French Coast near Cap D'Antifer, when a shell perforated the starboard side above the waterline and burst in the lubricating oil tank in the gearing room. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MELBREAK 24th Aug., 1944	Three Direct Hit 88 mm. and 37 mm. direct action fuzed Shell	Nil	MELBREAK was in action with an enemy convoy off the French Coast near Cap D'Antifer when she received 3 hits from shells. 88 mm. shell hit the starboard side abaft 'Y' gun and caused a 3 ft. diameter hole in the side plating. Internal damage was of a minor nature only. 37 mm. shell hit the starboard side aft abreast an oil fuel tank but did not cause any major damage. 37 mm. shell ricochetted off the windscreen and caused minor damage. Fighting Efficiency - Not seriously impaired.
MIDDLETON 27th Aug., 1944	Shell	1 month	MIDDLETON, while operating with Coastal Forces Craft off the coast of France, was attacked by an enemy force of eight Tank Landing Craft. MIDDLETON suffered only minor damage from shell fire. Fighting Efficiency - Not seriously impaired.
CATTISTOCK 29th Aug., 1944 D.N.C.6/R304	At least Twenty-Six Direct Hit direct action fuzed Shells (88 mm. down to small arms fire)	2 months including refit	CATTISTOCK, while in action against an enemy convoy, was attacked by shore batteries off the French coast. Hull plating and superstructure over the starboard side were perforated by direct hits and splinters. The largest concentration of hits occurred from abreast the forward 4 inch gun to the bridge; all damage was above the waterline. Direct hits and splinters caused serious damage to internal equipment and electric leads; radar sets, W/T equipment and aerials, gunnery and fire control circuits and transmitting station were all severely damaged. The forward 4 inch gun was damaged and there were many casualties amongst gun's crew. Fighting Efficiency - Seriously impaired. The forward 4 inch gun was out of action. All other guns were in local control. Type 271 and 291 radar, the director, transmitting station and gyro compass were out of action.
MIDDLETON 6th Sept., 1944	Shell	17 days	MIDDLETON, while operating in the English Channel, was fired on by shore batteries from Cap Gris Nez and sustained damage, mainly of a superficial nature. Fighting Efficiency - Impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LIDDESDALE 28th Sept., 1944 D.N.C.N6/BR306	One Direct Hit 88 mm. Two Direct Hit 75 mm. delay action fuzed Shells All judged to have been of A.P. type two of which did not detonate	17 days	LIDDESDALE, while operating in company with ZETLAND, and attacking enemy shipping in Pegadia Bay, Scarpanto, was fired on by shore batteries and hit three times. Hit No.1 an 88 mm. shell hit the starboard side of the bridge passed through the bridge structure and exploded on contact with the support of the port Oerlikon. It was considered that this shell only partially detonated. Hit No.2 a 75 mm. shell passed through a motor boat on the port side and a whaler on the starboard side without detonating. Hit No.3 a 75 mm. shell perforated the mast without detonating, but caused some damage to rigging and aerials. Fighting Efficiency - Slightly impaired. The main aerials were temporarily out of action. The port oerlikon mounting was put out of action.
ZETLAND 28th Sept., 1944	One Direct Hit Shell which did not detonate	10 days	ZETLAND, while in company with LIDDESDALE, and attacking enemy shipping in Pegadia Bay, Scarpanto, was fired on by shore batteries. A direct hit on the pom-pom damaged the mounting and wounded members of the guns crew. Fighting Efficiency - Slightly impaired. The pom-pom was put out of action.
FARNDALE	One Direct Hit 75 mm. direct action fuzed Shell	8 days	FARNDALE, while operating near Livadia Bay, Piskopi Island in the Aegean, was fired on by shore batteries. A shell hit the starboard side abreast the engine room at about waterline level and blew a hole about 2 ft. diameter in the plating. Controlled flooding occurred in the engine room. The starboard dynamo was damaged by splinters and put out of action. Fighting Efficiency - Not impaired. The ship was able to continue the patrol after a temporary patch had been fitted over the damaged side plating.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LOYAL 12th Oct., 1944	One Ground Mine in 7½ fathoms probably Acoustic type G.C. Charge 1550 lbs.	Indeterminate (Ship not repaired)	LOYAL was returning from the bombardment of enemy positions on the north east coast of Italy at 20 knots when an explosion occurred about 10 yds. off the starboard side abreast the engine and gearing room. The ship's structure was strained and bulkheads were buckled over an area extending from the forward boiler room to the stern, principally on the starboard side. The hull plating at the turn of bilge was corrugated to a maximum depth of 8 inches and the side framing was set inboard. Many rivets were pulled through the hull plating, causing leaks into the engine room and gearing room. The upper deck was lifted slightly, abreast the centre of damage. The structure of the starboard after fuel tanks was split which allowed oil to leak into the gearing room, gland and plummer block spaces and 'X' magazine, this resulted in a 7 degree list to port. Flooding into engine and gearing rooms was controlled. Flooding into 'X' magazine and the plummer block and gland spaces necessitated these compartments being shut down. The main and auxiliary machinery, electrical and radar equipment and gun armament were extensively damaged by shock. All steam and electrical power failed and the trailing steam pipe to the starboard main circulator was fractured which necessitated the evacuation of the engine room. Essential services were maintained by diesels. The after torpedo tubes jumped off their roller path. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow. The main engines, after torpedo tubes and radar equipment were put out of action. 'X' turret was out of action but the remainder of the main armament could have been fired in local control.
VERULAM 12/13th Nov., 1944	Twenty two Direct Hit 20 mm. Oerlikon and 2 Pdr. Shells	11 weeks including refit	VERULAM, while attacking an enemy convoy and its escort in northern waters, in company with ZAMBESI, received 22 hits with small calibre shell. These were widely dispersed throughout the ship but no serious damage resulted. Hits occurred on the D.C.T., 'X' and 'Y' guns, Bofors mounting, Oerlikon R.U. lockers, type 272 radar office, rangefinder director and the tiller flats. Three of the shells passed through the side plating, two into the forward boiler room and one into the engine room, but machinery was undamaged. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ZAMBESI 12/13th Nov., 1944	Six Direct Hit 20 mm. Oerlikon H.E. (direct action fuzed) armour piercing and tracer type Shells	Nil	ZAMBESI, while attacking an enemy convoy and its escort in northern waters, in company with VERULAM, received six shell hits. Hit No.1 (tracer) struck the lower support of the D.C.T. with no appreciable result. Hit No.2 (type unknown) struck the port after leg of the foremast at bridge level. Several unimportant electrical leads were cut. Hit No.3 (H.E.) struck the starboard after side of the funnel and burst on impact making a hole 10 inches in diameter in the funnel casing, and cutting the starboard siren drain pipe. Hit No.4 (armour piercing) perforated the shell plating abreast the after boiler room, about 12 inches above the waterline, then passed through the starboard fan casing and entered the boiler room air lock. Hit No.5 (presumed armour piercing) perforated the hull plating abreast the engine room, about 12 inches above the waterline, and cut a main electrical cable between the forward and after switchboards. Splinters pierced the main feeds between the starboard generator link boxes and the forward switchboard. Hit No.6 (type unknown) struck and dented the side plating abreast the after fuel tanks. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STEVENSTONE 30th Nov.,1944 D.N.C.N6/R328	One Moored Contact Mine in 8½ fathoms probably type G.R. charge 90lbs.	6½ months	STEVENSTONE was patrolling off the Schelt Estuary at 12 knots, when a mine detonated on her starboard side abreast the forward magazine. The bottom plating on the starboard side of the magazine was holed about 12 ft. in diameter and the surrounding structure was severely split and buckled. Immediately above the explosion the lower deck was blown up and holed about 6 ft. in diameter and the upper deck was bulged upwards about 9 inches and split in several places. The forward magazine was wrecked and the after bulkhead between it and the forward oil fuel tanks was badly buckled and split. The fore end of the ship for 50 ft. was open to the sea below the lower deck, including the magazine, 'A' and 'B' oil fuel tanks, the cold and cool rooms and the asdic compartments. The ship listed about 4 degrees to starboard and the lower mess spaces flooded to the waterline. The fore end compartments were isolated and closed down. Steering from the bridge failed due to a fracture in the telemotor pipe system. Fumes from the explosion, oil fuel, and heavy concentrations of Methyl Chloride gas from the refrigerating plant, caused many casualties on the forward mess decks. Fighting Efficiency - Seriously impaired. Due to structural damage at the fore end the ship could only steam astern: steering was only possible by hand control. Endurance was reduced due to the loss of the two forward oil fuel tanks. The forward gun and asdics were out of action.
WILTON 3rd Dec., 1944	Shell	Nil	WILTON, when in company with other Destroyers and M.T.B's and bombarding Lussin - Piccolo in the Adriatic, was slightly damaged by shell fire, presumably from shore batteries. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CASSANDRA 11th Dec., 1944	One Contact Torpedo probably Acoustic Homing type fired from submarine	2 years including refit	CASSANDRA was escorting a convoy to North Russia when a torpedo struck her starboard side forward in the vicinity of the Asdic compartments. The bow structure forward of the forward magazine, including 'A' gun was missing. Abaft this to abreast the forward oil fuel tanks - the forward bulkhead of which was only slightly strained and buckled - all structure was wrecked. A flooding boundary was established at the forward bulkhead of the oil fuel tanks, all remaining compartments forward were open to the sea. The two forward oil fuel tanks were contaminated due to leaks. The deck around 'B' mounting was lifted but the guns could still be trained and elevated. The Sperry master gyro suspension was broken. Fighting Efficiency - Seriously impaired. Ship could only steam slowly astern and eventually had to be taken in tow. 'A' gun was lost overboard, 'B' gun was out of action and the forward magazine and shell rooms were flooded. The A/S and Gyro compass were out of action.
ALDENHAM 14th Dec., 1944	Mine	Sunk	ALDENHAM, while operating in the Adriatic, about 30 miles north west of Zara, struck a mine and sank. No further information is available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARUNTA (H.M.A.S.) 5th Jan., 1945	Near miss by a Japanese Suicide Plane (Zero) which carried direct action fuzed Bomb (thought to have been about 250 lbs.)	Not known	ARUNTA was operating in the Philippines, when a suicide plane crashed into the sea about 30 ft. from her port side, abreast the engine and gearing rooms: the bomb it carried exploded on the surface. The ship's side plating above the waterline, abreast the engine room, gearing room, the 2nd W/T office and the after superstructure were perforated by splinters. The gearing room was flooded to the waterline through splinter holes and a fractured fire main. Partial flooding occurred in the engine room and office flat. All flooding was controlled. The exhaust steam main in the gearing room and the oil fuel filling line and forced lubrication system were punctured by splinters. The gearing room was evacuated due to escaping steam which necessitated the stopping of the main engines and the eventual shutting down of all boilers. Many high and low power electrical circuits were cut by splinters, including the H.P. supply to the engine and gearing rooms, leads to both steering motors and fire control circuits to 'X' and 'Y' guns. The 2nd W/T office was partially flooded, the equipment was damaged by splinters and the main aerials were brought down. Two small fires, one caused by splinters and the other by an electrical short, were quickly extinguished. Fighting Efficiency - Severely impaired. The ship was immobilised for 5 hours until temporary repairs to the machinery and electrical equipment could be effected and the gearing room pumped out. The steering gear was jammed and the ship turned in circles to take avoiding action till the rudder could be centred by hand. 'Y' mounting, the after fire control circuits, both steering motors, and the A/S gear and W/T equipment were temporarily out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WALPOLE 6th Jan., 1945	One Contact Mine in 16 fathoms	Indeterminate Ship not repaired	WALPOLE was on patrol in the North Sea, at 12 knots when a mine detonated on contact with the port side, abreast the forward boiler room. A hole was blown in the bottom plating, measuring approximately 30 ft. long, at the turn of bilge. The forward bulkhead of the boiler room was severely damaged and leaking; the after bulkhead was buckled and slightly leaking, and the upper deck above the centre of damage was bulged upwards. The funnel uptakes, mast, bridge, and forward superstructure were all severely damaged. The forward boiler room and a cofferdam on the fore side flooded immediately; leakage in the after boiler and engine room was controlled; the main and reserve feed tanks were flooded through open valves; and the ship listed to starboard about 12 degrees. The forward boiler room was wrecked, resulting in the complete loss of steam and failure of all electrical power. Steering gear to the wheelhouse was blown away, and the rudder jammed at 30 degrees. The oil fuel pipe line was fractured just aft of the forward boiler room. All essential leads on the foremast to types 242 and 291 radar were torn away and the W/T office and equipment were severely damaged by shock. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow due to loss of all steam power. Radar, W/T and A/S equipment was out of action, but the main and torpedo armament could have been fired in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PATHFINDER 11th Feb., 1945	One Near Miss probably 68 kgm. delay action fuzed Bomb depth of water 5-6 fathoms	Indeterminate (Ship placed in Reserve)	PATHFINDER was operating in the Pakseik Taungmour River, north Burma, when a bomb hit the water about 50 ft. from the starboard side abreast the after magazine (No.5) and probably detonated under the ship on, or near, the river bed. The column of water thrown up by the explosion fell over practically the whole length of PATHFINDER. The explosion caused a transverse split in the hull plating of length 7 ft. and maximum width 18 inches abreast the after magazine (No.5) and the ship's structure was generally distorted and buckled from the after end of the gearing room to just forward of the steering compartment. The ship sagged about 10 inches and there was a whipping buckle down the side plating abreast the bulkhead between the engine room and boiler room. The after magazine (No.5) was flooded to the waterline. From this compartment rapid flooding, later controlled, spread into the after magazine (No.4), spirit room and starboard gland compartment. In the engine room and after boiler room leaks through strained rivets and splits in hull plating were controlled. The after oil fuel tanks leaked slowly into the port gland compartment, depth charge magazine and gearing room. The starboard shaft was set up and partially seized; the port shaft was stiff to use. Telegraph rod gearing on the bulkhead between the engine room and after boiler room jammed. The auxiliary superheated and main steam bulkhead valves were torn away from the bulkhead allowing steam to escape into the engine room. Water from the spray dome entered the engine room through the hatches. The loss of steam from the after boiler room caused a partial failure of electrical power until the diesels were put on load. Radar equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised. The after guns could only have been fired in an emergency due to the weakened condition of the structure.
PALADIN 11th Feb., 1945	Near Miss Bombs	Nil	PALADIN, whilst at anchor in the Pakseik Taungmow River, North Burma, was attacked by Japanese fighter bombers. Splinters from near miss bombs caused superficial damage to upperworks including the bridge and foremast. Fighting Efficiency - Not impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RAPID 19th March, 1945	Five Direct Hit several "Shorts" probably 6 inch direct action fuzed Shells	14 weeks including refit	RAPID, while operating in the Andaman Islands, in company with VOLAGE, was fired on by shore batteries and damaged by 5 direct hits and several shorts. Shell No.1 detonated just below the upper deck abreast the port side of the forward boiler room. The shell nose was found embedded in the boiler steam drum. The saturated and balance steam pipes were damaged and the boiler room temporarily evacuated. Shell No.2 detonated at the after end of the pom-pom platform. The pom-pom deck, starboard fan intakes to engine room and the forward torpedo tubes were all damaged by splinters. The splinter shield of the pom-pom was blown off and the two guns damaged. Shell No.3 detonated on and wrecked the port dinghy. Fan intakes to the after boiler room and electrical cables to the engine room fans were damaged by splinters. The after boiler room was temporarily shut down and steam to main engines was lost. Shell No.4 detonated on the searchlight which, with its pedestal, was blown overboard. The type 272 radar mast was badly buckled and the aerial array damaged. R.U. lockers of the after Oerlikons were pierced by splinters. Shell No.5 detonated on the starboard side of 'X' gunshield, which was practically blown away. 'X' gundeck and the after superstructure was extensively damaged by splinters. Splinters from "Shorts" damaged the port side plating and superstructure abreast, and forward of, the bridge, the H.A. director, the port side of funnel, three main aerials, the port side of 'B' gunshield and radar and W/T offices. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised by loss of steam. 'X' gun, two guns of the pom-pom, type 272 radar and one tube of the forward torpedo tube mounting, were put out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VOLAGE 19th March, 1945	Three Direct Hit probably 6 inch delay action fuzed Shells	15 weeks including refit	VOLAGE, while operating in the Andaman Islands, in company with RAPID, was fired on by shore batteries and sustained 3 direct hits. Hit No.1 passed through the motor boat and detonated in or near a wash deck locker situated about 1 ft. from the starboard side. A hole measuring 12 ins. by 14 ins. was blown in the upper deck above the forward boiler room and the surrounding structure was perforated by splinters which cut several main electric cables, as a result of which all electrical power in and forward of the forward boiler room failed. The type 276 radar office was damaged by splinters. Hit No.2 struck a carley float stowage and burst about 3 ft. above the forecastle deck. Splinters perforated the forecastle deck passed into compartments below and severed the telemotor leads to the steering gear in the wardroom. Several H.P. cables, including those to the wireless and radar alternators, were also cut. A rocket flare locker on 'B' gun deck was pierced by a splinter. The rockets burnt but did not detonate and the fire eventually burnt itself out. Hit No.3 struck the ship's starboard side about 3 ft. above the upper deck abreast the forward upper mess deck, and burst 2 ft. inboard. The side plating was blown out and holed $4\frac{1}{2}$ ft. by 4 ft. and the upper deck was holed 24 ins. by 6 ins. Surrounding structure was damaged by splinters. Fighting Efficiency - Not seriously impaired. The ship was steered by the emergency telemotor system amidships. Lighting and electrical power was quickly restored to the fore end of the ship using emergency cables. The type 272 radar was damaged and out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ULSTER 1st April, 1945	One Near Miss 250 lbs. or 500 lbs. direct action fuzed Bomb	15 months	ULSTER was operating in the Philippines when a bomb detonated on impact with the water about 3 ft. from the ship's starboard side and abreast the after end of the after boiler room. The side plating was holed about 12 ft. diameter and forced inboard from the underside of the sheer strake to the bilge keel over a length of 22 ft. The bulkhead between the engine and boiler rooms was severely buckled on the starboard side. The engine room and after boiler room flooded immediately. Slow flooding in the gearing room was controlled and minor leaks occurred in the forward boiler room. Torpedoes, depth charges and equipment and other items of topweight were immediately jettisoned. The starboard side of the after end of the after boiler room was wrecked. The boiler side casings, front air casing over the superheater and the saturated and superheated steam exhaust ranges collapsed. Splinters cut and damaged the main steam pipes, H.P. and L.P. electric cables and wrecked the starboard steam fan. Steam was lost in the forward boiler room. All communications and controls to the after part of the ship failed. Fighting Efficiency - Seriously impaired. The ship was immobilised and taken in tow. Main armament was undamaged but fire control circuits to the after group were out of action. Torpedo and depth charge equipment was immobilised as all weapons had been jettisoned.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SAUMAREZ 16th May, 1945	Three Direct Hit probably (i) 5 inch S.A.P. (ii) 4.7 inch H.E. or S.A.P. (iii) 8 inch Shells	3 months including refit	SAUMAREZ, while in action against a Japanese Cruiser and Destroyer off the north coast of Sumatra, East Indies, received 3 direct hits. Hit No.1. A 5 inch shell struck and perforated the port side plating above the lower deck, just forward of the forward boiler room, passed across the stewards mess and detonated in the engineer's workshop. The base of the shell carried on to perforate the forward bulkhead of the forward boiler room, severed a main steam pipe and came to rest in No.1 boiler. Structure in the vicinity of the burst was damaged by splinters. The low power room filled with steam and was evacuated temporarily. Loss of power in the forward boiler room put the radar, gyro compass, torpedo control communications and some lighting circuits temporarily out of action until the boilers had been de-unitised. Hit No.2. An 8 inch shell struck and perforated the forecastle deck, passed through the flare of forecastle and thence over-board without detonating. The holes in the forecastle deck and side plating measured 30 ins. by 15 ins. and 15 ins. by 12 ins. respectively. Hit No.3. A 4.7 inch shell struck the port after side of the funnel and detonated inside it. The top of the funnel casings was wrecked over an area 4 feet square and the surrounding plating was damaged by splinters. One W/T set was put out of action by damaged aerials. Fighting Efficiency - Not seriously impaired. The ship was steaming on the unit system and when damage was sustained in the forward boiler room the only effect was a slight loss of speed whilst changing over to the after boiler room.
VIRAGO 16th May, 1945	One Near Miss Bomb	3 months including refit	VIRAGO while operating with unit of the East Indies Fleet, north of Sumatra, sustained a near miss on the port side abreast the after oil fuel tanks. The side plating above the waterline was perforated by numerous splinters. The after oil fuel tanks were holed and the suction system was put out of action. Minor damage to electrical cables aft was caused by splinters which also damaged the Bofors gun. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LAGAN 20th Sept.,1943 D.N.C.4B/R280	One Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship not repaired)	LAGAN was escorting a convoy in the North Atlantic, at 15 knots, when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away, a further 30 ft. (to the after superstructure) was wrecked and blown upwards into the ship. Forward of this only minor damage occurred. Two fairly severe whipping buckles, one just abaft the funnel and the other just forward of the main damage, extended down to the waterline. There was immediate flooding of the plummer block and gland spaces; abaft this the ship was open to the sea. No serious damage occurred to the main or auxiliary machinery or to the electrical equipment outside the limits of the wrecked after end. Minor fires were started by the ignition of calcium flares in the wreckage aft. Fighting Efficiency - Seriously impaired. The ship was immobilised due to loss of the rudder, steering gear, both tail shafts and propellers. All depth charge equipment was out of action. The after 4 inch gun could only be fired in an emergency due to the weakened condition of the ship's structure.
ITCHEN 22nd Sept.,1943	Probably Acoustic Homing Torpedo fired from submarine	Sunk	ITCHEN, while escorting a convoy in the North Atlantic, sank following a violent explosion and only two survivors were rescued.
TWEED 25th Sept.,1943	Rammed submarine	2 weeks	TWEED, while operating in the North Atlantic, hit a submarine a glancing blow. The bow structure was damaged principally on the starboard side. The fore peak was open to the sea and minor flooding in the forward magazine and starboard forward oil fuel tanks was controlled. Fighting Efficiency - Impaired. Endurance was reduced due to the flooded oil fuel tanks.

FRIGATES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CUCKMERE 11th Dec., 1943	One Contact Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	CUCKMERE, while escorting a convoy in the Mediterranean at 12 knots was struck by a torpedo on the port side, forward of the bridge and abreast the A/S compartment. The fore end structure for 65 ft. from the hold to the forecastle deck and 10 ft. of the signal deck was wrecked. The bow pivoted about the forward bulkhead of the A/S compartment and dropped about 8 ft. A whipping buckle just forward of the funnel girthed the forecastle deck and the ship's side to below the waterline. The fore end was flooded to the waterline for 65 ft. including the forward oil fuel tanks and A/S and S.A. compartments. Oil fuel tanks abreast the forward boiler room were flooded through the whipping buckle; reserve feed tanks under the after boiler room were contaminated; both boiler rooms leaked oil fuel from tanks abreast them; the after ballast tank was flooded to correct trim. The starboard generator was put out of action and all lighting failed forward of the boiler rooms. The forward hedgehog mounting was destroyed and the elevating gear of the forward 4 inch gun was damaged. Both twin oerlikon mountings sustained minor damage. The A/S equipment was wrecked and radar aerials were damaged by shock. Fighting Efficiency - Seriously impaired. The ship was unable to steam ahead due to the damaged bow but could proceed astern under her own power at slow speed. Endurance was reduced due to the loss of forward oil fuel tanks and contamination of feed water. A/S equipment, hedgehog mounting, radar and gyro compass were out of action.
TWEED 7th Jan., 1944	Probably a Non-Contact Torpedo fired from submarine	Sunk	TWEED was operating in the North Atlantic at 13 knots, when a torpedo exploded in the vicinity of the after magazine. The ship broke her back just abaft the engine room and the after bulkhead of this compartment was thought to have collapsed. About 30 seconds after the torpedo hit at least one of a pattern of 10 depth charges exploded underwater and probably caused further damage. The ship took a heavy list to starboard, the bows came vertically out of the water and the stern was submerged from abaft the funnel. TWEED sank in approximately 2 minutes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GOULD 1st March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	GOULD was hunting a submarine in the Atlantic when a torpedo struck the port side abreast the after motor room. The ship broke in two and the stern quickly sank. A fire was reported on the upper deck. In the forward motor room the automatic lighting did not function when the main lighting failed. The fore end listed heavily to starboard and sank about twenty five minutes after being hit. REMARKS Shock tests indicate that the automatic emergency lantern is satisfactory except that the plug connection is liable to become detached from the lantern under shock or vibration. Instructions to overcome this have been issued, A.F.O.5434/44 refers.
VALLEYFIELD (H.M.C.S.) 7th May, 1944	Torpedo fired from submarine	Sunk	VALLEYFIELD was sunk by a torpedo whilst operating off Cape Race, Newfoundland. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HALSTEAD 11th June, 1944 D.N.C.6/R294	One Contact Torpedo probably fired from 'E' or 'R' Boat	Indeterminate (Ship placed in reserve)	HALSTEAD was in action against 'E' and 'R' Boats in the English Channel, at 5 knots, when a torpedo struck the fore end approximately abreast No.1 - 3 inch gun port side. About 80 ft. of the bow structure forward of the bridge was missing after the explosion. The forward superstructure and No.2 - 3 inch gun platform were wrecked and forced against the bridge; the forward bulkhead of the forward boiler room was bulged aft, but not leaking; the remaining hull structure forward of this was severely damaged. Oil fuel tanks, low power room and adjacent compartments on the 1st and 2nd platform decks, forward of the forward boiler room were open to the sea. A minor fire in the cafeteria was probably due to electrical 'shorts' and scattered oil fuel. This was soon got under control but smoke and carbon dioxide fumes were drawn into all machinery spaces which necessitated their temporary evacuation. Steam was later raised in the after boiler room but the forward boiler room was closed down. The steering from the bridge was put out of action. The W/T equipment was damaged by shock and the elevating and training gear of No.2 - 3 inch gun seized. Fighting Efficiency - Seriously impaired. No.1 - 3 inch gun, 2 pdr. pom-pom, forward magazines, hedgehog mounting and ammunition and A/S and E/S gear were blown away. The ship was able to proceed slowly astern using the after machinery spaces. The forward boiler room, forward transmitting station, No.2 - 3 inch gun and bridge Oerlikons were out of action. REMARKS After the damage the engine room telegraphs registered "full ahead" and this order was obeyed until countermanded by messenger. Approved to fit Mk. XV telephones between machinery spaces and the bridge - C.A.F.O's 2683/43 and 2684/43 refer.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOURNE 15th June, 1944	One Contact Torpedo fired from submarine	Sunk	MOURNE was operating in the English Channel off the Normandy beaches at 3 - 5 knots, when a torpedo struck the port side in the vicinity of the forward boiler room. There was a dull clanging explosion accompanied by an upheaval of water and black smoke. About 2 seconds later another bigger explosion occurred on the starboard side, immediately opposite that on the port side, accompanied by a large flash of red orange flame. It was thought that the forward magazine exploded and flames were seen coming out of the starboard side. The ship quickly heeled over to port, capsized, and sank by the bow in 64 seconds.
BLACKWOOD 15/16th June, 1944	One Torpedo fired from submarine	Sunk	BLACKWOOD was operating in support of the Normandy landings at 12 knots, when a torpedo hit the fore end, on the starboard side, in the vicinity of the forward magazine which was thought to have exploded but there is no evidence to substantiate this. Immediately after the explosion the ship was obscured by a dense cloud of yellow smoke. The fore end, before the bridge, was blown away, the foremast collapsed and the bridge structure was wrecked. The ship's back appeared to have been broken. BLACKWOOD developed a slight list to starboard, trimmed by the bow and sank ten hours after being attacked.
GOODSON 25th June, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	GOODSON was operating off Cherbourg at 15 knots, when a torpedo struck in the vicinity of the steering compartment, probably on the port shaft. About 35 ft. of the stern was missing including the steering compartment, 40 mm. magazine and after store. A further 26 ft. forward of this, including the depth charge magazine and after crew's space was wrecked and blown upwards. The forward bulkhead of these compartments was severely damaged and leaked badly. The depth charge magazine flooded immediately; flooding in the after crews space, gland compartments and after magazines was controlled. The ship heeled about 20 degrees to starboard and settled 6 ft. by the stern. Heel and trim were reduced by counterflooding the fore peak, transferring oil fuel from aft to forward and jettisoning heavy weights from aft, including the depth charges. Both shafts were fractured and forced upwards with the damaged stern. The asdic gear was temporarily out of action and HF/DF equipment was damaged by shock. Minor fires were started by electrical failures. Fighting Efficiency - Severely impaired. The ship was immobilised and taken in tow due to the loss of steering gear and fracture of shafts. The after depth charge gear was wrecked and out of action. 'X' gun was out of action due to the weakened condition of surrounding structure.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TROLLOPE 6th July, 1944	One Contact Torpedo fired from 'E'-boat	Indeterminate (Ship placed in reserve)	TROLLOPE was operating off the French coast at 18 knots, when a torpedo struck the fore end in the vicinity of the forward magazines which were reported to have exploded. About 130 ft. of the ship before the forward engine room, including the bridge and foremast, was blown away. A whipping buckle girthed the hull in the vicinity of the after oil fuel tanks. The forward engine room flooded and the after boiler room leaked. The ship heeled about 3 degrees to starboard. Fighting Efficiency - Severely impaired. The ship was immobilised due to the loss of the fore end.
MATANE (H.M.C.S.) 20th July, 1944	One Direct Hit with Radio Controlled Glider Bomb type H.S.293 delay action fuzed	8½ months including refit	MATANE was operating off the French coast at 20 knots, when a glider bomb struck a carley float stowed on the port side near 'Y' gun, glanced off the deck, perforated the side plating at the break of forecastle and exploded underwater abreast the engine room port side. A hole measuring about 8 ft. by 18 ft. long was blown in the ship's side, the surrounding plating was buckled and forced inboard. The remaining plating abreast the engine room was generally corrugated and laps and butts were strained. A deep buckle girthed the ship, and the forecastle deck was buckled at the fore and after ends of the engine room respectively. The engine room immediately flooded but minor flooding in the after boiler room was controlled. The port main engine and port turbo-generator was wrecked; auxiliaries on the port side of the engine room generally were damaged but those on the starboard side received only minor damage. All electrical power failed due to fractured steam pipes, wrecked generator and flooding in the engine room but power was restored by diesels. 'Y' gun was stiff to train. Fighting Efficiency - Severely impaired. The ship was immobilised due to the flooded engine room. All guns were in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BICKERTON 22nd Aug., 1944	(i) One Acoustic Homing Torpedo fired from submarine (ii) Torpedo from own forces	Sunk	BICKERTON was in company with NABOB in the North Sea during an attack on TIRPITZ when a torpedo struck the after end. The ship was immobilised, developed a list to starboard and settled by the stern. The stern structure was wrecked and the upper deck was split and opened 2 ft. just abaft the engine room. Flooding occurred abaft the after bulkhead of the after engine room, and glands in this bulkhead leaked but the ship was considered reasonably seaworthy and would undoubtedly have remained afloat. Some confusion and panic was caused by the continued sounding of the steam siren and suffocation below decks due to C.S.A. smoke that had been drawn down the ventilation system from a damaged generator which had been blown forward near the intakes. Control of the situation was regained when the siren was shut off, but due to tactical considerations (NABOB had also been torpedoed) it was decided to abandon ship. $3\frac{1}{2}$ hours after the attack BICKERTON was sunk by a torpedo from own forces.
RETALICK 30th Aug., 1944	One Direct Hit with 40 mm. direct action fuzed Shell	10 days	RETALICK was engaging an enemy convoy and E-Boats in the English Channel when a shell hit and exploded on the zareba around the after oerlikon mounting but no serious damage was caused. Fighting Efficiency - Not impaired.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CHEBOGUE (H.M.C.S.) 4th Oct., 1944	One Torpedo probably Acoustic Homing type. Fired from submarine	Indeterminate (Ship placed in reserve)	CHEBOGUE was escorting a convoy in the Atlantic at 13 knots when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away, a further 35 ft. to the after end of the after superstructure was wrecked and blown upwards, the upper deck being forced forward over the 12 pdr. gun. A part of the rudder post was thrown forward where it crashed through the forecastle deck abreast the funnel, passed through the diesel room (without seriously damaging the machinery), penetrated a double bottom oil fuel tank and finally came to rest 3 ft. from the ship's bottom. Forward of the wrecked stern structural damage was only of a minor nature. There was immediate flooding of the plummer block and gland spaces; abaft this the ship was open to the sea and the quarter deck was awash. The main condensers were strained and leaking, but there was no other serious damage to main or auxiliary machinery or electrical equipment outside the limits of the wrecked after end; the steering gear, rudder, propellers and shafts were either missing or seriously damaged. The after 12 pdr. gun was severely damaged but all other gun armament remained serviceable. Depth charges were blown overboard by the explosion and detonated at a great depth; all equipment was wrecked or seriously damaged. W/T aerials were unserviceable due to shattered insulators. Fighting Efficiency - Severely impaired. The ship was immobilised and towed a distance of 890 miles to port. All depth charge equipment and the after 12 pdr. gun was out of action.
MAGOG (H.M.C.S.) 14th Oct., 1944	One Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship not repaired)	MAGOG whilst operating in the North Atlantic, east of Newfoundland was struck aft by a torpedo. After the explosion about 60 ft. of the stern structure was missing but the after bulkhead of the engine room was intact and watertight. No further details of the damage are available. Fighting Efficiency - Seriously impaired. The ship was immobilised, taken in tow and then beached.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOUNSEY 1st Nov., 1944	Probably a small Contact Mine charge about 90 lbs. depth of water 110 fathoms	4 months	MOUNSEY was patrolling off Kola Bay, North Russia, at 11 knots when an explosion occurred abreast the starboard after oil fuel tanks. The resultant hole in side plating measured 15 ft. by 12 ft.; the bulkheads of the plummer block compartment and between the oil fuel tanks were wrecked; above the explosion the first platform deck was wrecked and the main deck blown upwards. The two starboard oil fuel tanks, and the cofferdam and plummer block compartments immediately flooded to the waterline, and there was controlled flooding into the after motor room; as a result the ship developed a slight list to starboard. A serious fire aft which was caused by ignition of diesel oil from damaged tanks, spread to bedding, kit and materials in the after mess decks and compartments centred around the explosion, but was finally extinguished after about 5 hours. The starboard plummer block lifted and the shaft was slightly distorted. Steering by hand from the after conning position was necessary until temporary repairs to damaged electric cables had been effected. The explosion caused the failure of all electrical power abaft the after motor room. All communications to 'Y' gun and depth charge equipment were destroyed by the explosion and fire. Fighting Efficiency - Impaired. Speed was reduced to 11 knots to avoid further damage. The after guns and depth charge equipment could be fired in local control. Endurance was reduced due to flooding of the starboard after oil fuel tanks.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WHITAKER 1st Nov., 1944 D.N.C.6/R329	Probably a Torpedo possibly a Mine	Indeterminate (Ship placed in reserve)	WHITAKER was escorting a convoy off Northern Ireland at 10 knots when an explosion occurred at the fore end, followed a few seconds later by another explosion of considerably greater violence than the first. The findings of the Board of Inquiry were that the first explosion was due to a floating mine although the possibility of a torpedo could not be dismissed. The second explosion was probably due to the ignition, by splinters, of cordite and/or hedgehog propellent stowed in the forward magazines. Admiralty Authorities have suggested that the first explosion was more probably caused by a torpedo. The bow structure up to just forward of the bridge was missing and the upper deck to nearly abreast the funnel was blown up and over the bridge. The bridge, forward boiler room and the remaining forward compartments were all wrecked and flooding occurred to the waterline. Abaft the forward boiler room only minor damage to structure occurred and all machinery and electrical equipment were in good working order. The forward 3 inch and oerlikon guns were missing or wrecked and the after guns were damaged by blast. Some damage to depth charge equipment occurred. A small fire in the vicinity of the funnel and bridge was probably caused by burning oil fuel. The main W/T and radar offices were wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised and taken in tow. A large number of the personnel were casualties and all the officers were killed.
DUFF 30th Nov., 1944	Probably a small Contact Moored Mine charge about 90 lbs. depth of water 15 fathoms	Indeterminate (Ship placed in reserve)	DUFF was returning to Harwich from patrol at 12 knots when an explosion occurred under the forward boiler room. A hole was torn in the bottom plating, between the centre line and the starboard bilge keel, measuring $11\frac{1}{2}$ ft. by $10\frac{1}{2}$ ft. In the forward boiler room, which was wrecked, the forward bulkhead was buckled and torn and the after bulkhead was slightly distorted. Immediate flooding to the waterline occurred in the forward boiler room and in the middle line and starboard after oil fuel tanks of the forward group. The remaining starboard tanks of this group also flooded as a result of the oil fuel suction line being fractured in the boiler room. W/T and radar equipment was damaged by shock. Fighting Efficiency - Impaired. One boiler room was out of action but the ship was able to proceed under her own power on the after unit. Endurance was reduced by loss of some of the forward group of oil fuel tanks.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BULLEN 6th Dec., 1944	One Torpedo probably Acoustic Homing type fired from submarine	Sunk	BULLEN was escorting a convoy off the north coast of Scotland when an explosion occurred on the starboard side amidships, just abaft the funnel. Evidence indicated that the after engine room and boiler room flooded immediately. The ship quickly broke in two, the fore part turning on its beam ends and the after part floating vertically. The fore part sank 41 minutes after the explosion. The after part sank 1 hour and 6 minutes later.
DAKINS 25th Dec., 1944	One Ground Mine in 10 fathoms probably type G.C. Charge 1550 lbs.	Indeterminate (Ship placed in reserve)	DAKINS was on patrol off the Belgian coast at 15 knots when an explosion occurred under the bottom on the starboard side of the forward magazines. Hull plating on the starboard side was severely buckled, principally below the waterline, from the bow to abreast the forward engine room. For about 30 ft. abreast the magazines, the side plating and framing was forced inboard below the first platform deck, and the plating was opened up over a length of about 21 ft. A large split also occurred in the keel. On the port side the buckling of the plating was less severe but in one place there was a split abreast the magazines. A whipping buckle occurred across the upper deck abreast the expansion joint in the superstructure. The A/S compartment was wrecked and the equipment out of action. About 80 ft. of the fore end of the ship - including the magazines, A/S compartment and hedgehog stowage - was flooded to the waterline. In the forward boiler room, oil fuel flooded into the bilges from a split in the bottom of an adjacent oil fuel tank, but this was controlled. The forward boiler room and both engine rooms started to fill with steam from a fractured pressure gauge pipe which necessitated the temporary shutting down of the boilers and a consequent failure of electrical power. The emergency lighting functioned correctly. Auxiliary machinery, secondary armament, radar and W/T equipment was extensively damaged by shock, but did not materially effect the ship's fighting efficiency. Fighting Efficiency - Impaired. The ship was able to return to port under her own power but seagoing efficiency was seriously reduced.

FRIGATES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AFFLECK 26th Dec., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (Ship placed in reserve)	AFFLECK was patrolling off Cherbourg in company with CAPEL at 8 knots when an explosion aft in the vicinity of the port rudder. Approximately 50 ft. of the stern structure was wrecked and forced upwards about 12 degrees. Forward of the wrecked stern only minor structural damage occurred. Uncontrollable flooding to the waterline occurred over about 65 ft. of the after end of the ship including the after ammunition stowages and crew's accommodation. Forward of this there was some flooding in crew's accommodation which was controlled. As a result of the flooding and damage the ship heeled 7 degrees to starboard. Three smoke containers were blown forward, two burst amidships on the boat deck and one in the port waist. Both boiler rooms and engine rooms had to be temporarily evacuated due to acrid fumes from the containers being drawn down into the machinery compartments. Both shafts were fractured, the steering gear was wrecked, and the port rudder and starboard propeller were missing. The after 3 inch gun could not be fired due to damaged elevating gear and the amidships oerlikons were inoperative due to drenching by acid from the displaced smoke containers. The depth charge equipment was also wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised due to fractured shafts, wrecked steering gear and the loss of one propeller and rudder. The after 3 inch gun, the amidships oerlikons and all depth charge equipment was out of action.
CAPEL 26th Dec., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	CAPEL was on patrol off Cherbourg in company with AFFLECK when an explosion occurred forward, followed shortly afterwards by a second explosion - possibly in the forward magazine. The bridge structure was partly blown away and forced back on to the funnel. As a result of serious damage sustained CAPEL sank slowly. There were heavy personnel casualties and all officers were killed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MANNERS 26th Jan., 1945	(i) One Acoustic Homing Torpedo probably Non-contact (ii) One Torpedo probably Contact both fired from a submarine	Indeterminate (Ship placed in reserve)	MANNERS was on passage from Falmouth to Liverpool at 18½ knots when an explosion occurred under the stern. About 10 seconds later there was a further explosion well astern probably caused by the emergency ante-gnat depth charge countermining other depth charges blown overboard by the first explosion. The resultant damage to structure was not serious. The stern was slightly buckled and the upper deck set up. There was about 3 ft. of water on the lower deck aft. Depth charge rails were distorted and some depth charges were blown overboard. The main breaker in the forward engine room tripped as a result of the second explosion and caused the temporary failure of main motors until it was closed again. Efforts to move the ship failed, for although the shafts turned there was no propulsion and it was presumed the propellers or tail shafts were broken or seriously damaged. At least one of the smoke bottles was thrown forward and landed in the vicinity of the engine rooms which as a result were filled with smoke. The radar set was out of action and the asdics were operating at a very low efficiency. 13 minutes after the first explosion a third and much heavier explosion occurred 20 to 30 ft. from the stern near the forward end of the steering compartment. About 60 ft. of stern structure, from the after end to abreast the magazines, was blown away. No serious damage or flooding occurred forward of the wrecked stern. Apart from the loss of steering gear, shafts and propellers, no major damage was caused to machinery or electrical equipment. The after 3 inch gun was severely damaged. Fighting Efficiency As a result of the first two explosions the ship was immobilised due to damaged propellers or shafting, although not seriously damaged structurally. The third explosion wrecked the stern and put 'X' 3 inch gun out of action.

FRIGATES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AYLMER 26th Jan., 1945	Rammed German submarine	2½ months	AYLMER, while operating off the Western Approaches at 15 knots, rammed and struck a U-boat just before the conning tower. The bow structure from the keel to the 2nd platform deck was torn away over a length of 7 ft. and side plating and framing abaft this - to bulkhead 14 was slightly buckled and distorted. Bulkhead 14, which was the forward bulkhead of the asdic compartment, suffered only minor damage and leaked slightly, it was shored as a precautionary measure. The first and second peak tanks were open to the sea and flooded. At the time of the ramming the asdic dome was housed and this together with its associated equipment was undamaged. Fighting Efficiency - Not seriously impaired The ship proceeded stern first to prevent aggravation of the damaged fore end but it was found that excessive vibration was caused. It was therefore decided to go ahead and AYLMER reached port under her own power at 11 knots.
NEW GLASGOW (H.M.C.S.) 20th March, 1945	Rammed German submarine	11 weeks	NEW GLASGOW, while operating off the Western Approaches, rammed a German submarine. Hull damage was confined mainly to the after end, where the spirit room and after ballast tank were flooded. The bottom plating was split in four places and minor leaks occurred in the after 4 inch magazine. The port propeller was seriously damaged, its tail shaft was out of alignment and the supporting 'A' bracket bent. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
COSBY 21st March, 1945	One Torpedo probably Acoustic Homing type fired from submarine	8 days	COSBY was hunting a submarine in the English Channel at 17 knots when a violent explosion occurred 30 to 40 yards astern, thought to have been caused by the counter mining of a GNAT torpedo. The structure of the ship was undamaged but internal equipment sustained fairly extensive shock damage. Auxiliary steam pipes and pipe lines to the firemain and water services were damaged; some steam joints leaked and minor flooding occurred on the P.O's mess deck due to a fracture in the firemain. The main propulsion motors were temporarily stopped due to the tripping of the field switches. In the forward motor room, a lubricating oil pipe of the turbo supply fan was fractured which necessitated shutting down this compartment and the boiler; power was lost temporarily until cross connections could be made with the after boiler rooms. Radar, asdics and plot were damaged by shock and rendered unserviceable. The range setting gear of No.1 - 3 inch gun was distorted. Fighting Efficiency - Seriously impaired temporarily. The ship was temporarily immobilised due to the tripping of the field switches but was later able to proceed under her own power using both engines and one boiler room. The efficiency of No.1 - 3 inch gun was considerably reduced due to elevation errors. Radar, plot and asdics, were out of action.
TEME (H.M.C.S.) 29th March, 1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship placed in reserve)	TEME was on anti-submarine patrol in the English Channel at 8 knots when an explosion occurred at the after end in the vicinity of the propellers. About 30 ft. of the stern abaft the cut up was blown away and a further 30 ft. (to the after end of the superstructure) was seriously damaged. The ship was taken in tow but while on passage weather conditions deteriorated and 9 hours later the 30 ft. of damaged stern broke away and sank. Forward of this damage was slight. The plummer block and gland spaces and the depth charge magazine were flooded; abaft this the ship was open to the sea. No serious damaged was visible to main and auxiliary machinery or of gunnery and electrical equipment outside limits of the wrecked after end, but it was suspected that the port engine was slightly out of alignment. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of rudder, steering gear, both tail shafts and propellers. All depth charge equipment was out of action.

FRIGATES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EKINS 16th April, 1945	Two Ground Mines in 12 to 14 fathoms probably "Oyster" or "Sammy" charge about 1500 lbs.	Indeterminate (Ship placed in reserve)	EKINS was on patrol off the Dutch coast at 10 knots when an explosion occurred under the bottom just abaft the after engine room. All lighting and power failed, and a list to port, with a 2 ft. trim by the stern developed; the ship drifted slowly out of control. Fifteen minutes later a second explosion occurred off the port bow. The ship listed to starboard a maximum of 5 degrees and then trimmed by the bow. The first mine corrugated the port and starboard bottom plating below the waterline - maximum depression 4 inches - over a length of 140 ft. Over this area internal structure was severely strained and, in places, the plating was fractured. A deep buckle girthed the hull, port and starboard, abreast the after oil tanks and the keel was set up 6 inches. The after engine room, after boiler room, oil fuel tanks and gland spaces were flooded and slow flooding occurred in the forward engine room but was controlled. Damage to machinery and electrical equipment outside the limits of the flooded area was not serious. Main armament although damaged was still serviceable but close range armament was only 60% efficient due to shock damage. Shock damaged the radar and W/T equipment and resulted in the loss or damage of most of the aerials. The second mine corrugated the port and starboard hull plating below the waterline, over a length of 50 ft. at the fore end and the plating abreast the forward peak tanks was split. Flooding forward was confined below the 2nd deck, to the asdic compartment and forward peak tanks. The asdic compartment and associated equipment were wrecked. Fighting Efficiency - Seriously impaired. After two hours the ship was able to proceed under her own power at slow speeds using the starboard engines. Radar, W/T and asdics were out of action. Main armament was capable of being operated at reduced efficiency but 40% of the close range armament was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
REDMILL 27th April,1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship placed in reserve)	REDMILL was operating off the north west of Ireland at 8 knots when an explosion occurred at the after end in the vicinity of the propellers. About 50 ft. of the stern was blown away. Forward of this a further 20 ft. - including 'Y' 3 inch gun and its support - was wrecked and blown upwards to an angle of about 45 degrees. Forward of the wrecked stern damage was only of a minor character. The after 3 inch magazine - just forward of the main damage - was flooded but the fresh water tanks to port and starboard of it were intact. Abaft this the ship was open to the sea. In the after engine room minor flooding occurred through a split in the side plating. All lighting and power failed temporarily due to the tripping of the main breakers. 'Y' - 3 inch gun was severely damaged and all depth charge equipment was blown away. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of steering gear and both propeller shafts. 'Y' - 3 inch gun and all depth charge equipment was out of action.
GOODALL 29th April,1945	(i) One Contact Torpedo fired from submarine (ii) Gunfire from own forces	Sunk	GOODALL was operating off Kola Inlet, North Russia, when a torpedo struck the fore end. The board of Inquiry investigating this incident stated that the forward magazine exploded but there is no definite evidence to confirm this point. The bridge structure was wrecked and forced back over the funnel. Evidence indicated that the forward motor room was structurally intact and that no serious flooding had occurred, but the main propulsion board in this compartment was torn away from the deckhead. The after machinery compartments were apparently undamaged and serviceable. The main motors failed due to the fracture of fuel supply pipes from the forward tanks and thereby all pressure on the firemain was lost. A large oil fuel fire enveloped the fore end and no adequate means for fighting this, apart from a small petrol pump and extinguishers, were available. GOODALL was thus abandoned and sunk by our own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 20th Nov., 1939	Mine probably contact type depth of water 7 fathoms	Nil	HUSSAR was sweeping a channel near the Humber Light Vessel when a mine jammed in the sweep and exploded 10 yards from the ship's side. Ship was severely shaken. Fighting Efficiency - Not impaired.
SPHINX 3rd Feb., 1940	One Direct Hit 220 lbs. direct action fuzed Bomb	Sunk	SPHINX was attacked by enemy aircraft whilst sweeping north of Kinnaird Head in company with SPEEDWELL and SKIPJACK. The bomb pierced the forecastle deck and exploded inside the ship. All the structure forward of the forward 4 inch gun was wrecked. About 90 tons of water and oil fuel was pumped overboard from the forward tanks to correct heel. The forward boiler room flooded and the ship capsized. The vessel was washed ashore bottom up about 1½ miles north of Lybster. REMARKS This incident emphasised the danger of pumping out oil fuel tanks to correct list, so causing loss of stability and possible subsequent loss of vessel in heavy weather. (This and other similar cases led to the issue of Appendix III to O.U.6331/39 - Damage Control Handbook)
SUTTON 30th March,1940	Mine probably Contact Moored, depth of water 23 fathoms	7 weeks	SUTTON was sweeping off Cromer Knoll when a mine broke surface and exploded 5 ft. astern. The ship vibrated violently, plating at the after end was buckled and the after peak tank flooded. Fighting Efficiency - Slightly impaired.
DUNOON 30th April,1940	One Moored Mine Contact depth of water 25 fathoms	Sunk	DUNOON was sweeping in the North Sea when a heavy double explosion occurred which obscured her in a cloud of smoke and spray. When next seen the entire fore-end forward of the funnel, including the superstructure, mast and bridge had been blown away, except for a small portion of the bows which were showing keel uppermost. It was thought that the forward magazine had exploded. Extensive damage was sustained to the after part of the ship and all lighting failed. Main engines and auxiliaries were damaged and out of action and steam pipes fractured. The after part of DUNOON remained afloat for 50 minutes.

MINESWEEPERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 15th May, 1940 D.N.C.4B/R19	Direct Hit size unknown direct action fuzed Bomb	6 weeks	HUSSAR was attacked by enemy aircraft whilst operating in the North Sea. The bomb struck near the starboard edge of the quarter deck and exploded blowing a hole in the deck and side plating. The steering gear was out of action but the main machinery was undamaged. Fighting Efficiency - Impaired. Due to damage aft and loss of otters the vessel could not operate as a minesweeper. The vessel could only be steered by hand, and this would have been almost impossible in rough weather. Owing to damage to W/T aerials ship could only receive messages.
HARRIER 25th May, 1940 D.N.C.4B/R23	One Direct Hit 250 kgm delay action fuzed Bomb Two Near Miss 250 kgm delay action fuzed Bombs	7 weeks	HARRIER was sweeping ahead of a convoy just off Zeebrugge when she was attacked by enemy aircraft. The bomb hit and pierced the superstructure, passed through the forecastle deck and out through the ship's side. Minor structural damage was caused in the path of the bomb. The near miss bomb exploded on contact with the water about 20 yards from the starboard side. This caused the fracture of castings in the machinery spaces, resulting in the speed being reduced from 14 to 10 knots. Fighting Efficiency - Impaired Speed reduced to 10 knots. REMARKS This incident revealed the need for extra isolation valves in the fire main so that damaged portions can be more easily isolated.
PANGBOURNE 29th May, 1940	Near Miss size unknown delay action fuzed Bombs	3 weeks	PANGBOURNE, during the evacuation from Dunkirk, sustained slight damage underwater from near miss bombs. Fighting Efficiency - Slightly impaired.
KELLET 29th May, 1940	Near Miss size unknown delay action fuzed Bombs	2 weeks	KELLET sustained damage to the sheer strake and upper deck edge from near miss bombs during the evacuation from Dunkirk. Fighting Efficiency - Unimpaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HEBE 31st May, 1940	Size number and type unknown Bomb	5 days	HEBE, during the evacuation of Dunkirk, sustained slight structural damage. Fighting Efficiency - Unimpaired.
SALAMANDER 1st June, 1940	Size and type unknown Bomb	6 weeks	SALAMANDER was attacked by enemy aircraft during the evacuation of Dunkirk. Castings of main and auxiliary machinery were cracked and the ship could only proceed slowly. Fighting Efficiency - Seriously impaired.
SKIPJACK 1st June, 1940	Five Direct Hit size and type unknown Bombs	Sunk	SKIPJACK, during the evacuation of Dunkirk, was attacked by enemy aircraft. Two bombs hit the ship, one penetrated to an oil fuel tank on the port side, and the other hit the starboard side. The ship was immobilised with a heavy list to port. Immediately afterwards three more bombs hit the ship, one passed through the bridge, another through the forecastle and the third went into the engine room. About five minutes after these last bomb hits SKIPJACK capsized to port and sank.
TEDWORTH 30th July, 1940	Near Miss size and number unknown direct action fuzed Bombs	11 weeks	TEDWORTH was attacked by enemy aircraft whilst off Dover. Splinter damage was sustained and the D/G was shattered on the port side. Minor damage occurred in the superstructure and engine room. Slight flooding occurred. Fighting Efficiency - Impaired. Speed was reduced owing to damage and D.G. was out of action.

MINESWEEPERS - 1940/41

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HALCYON 27th Sept.,1940 D.N.C.4B/R33	One Mine Non-contact Acoustic depth of water 13 fathoms	9 months	HALCYON was proceeding in the North Sea at 13 knots when an explosion occurred beneath the vessel. The stern dropped three ft. and the minesweeping store was flooded. At the after end the outer bottom was corrugated, and the double bottom frames distorted. The main machinery castings were fractured and one dynamo wrecked. Abaft the forward bulkhead of the after magazine flooding to the waterline, took place. Flooding occurred above the lower deck as far forward as the after bulkhead of the after boiler room. The ship was towed to harbour in a sinking condition. Fighting Efficiency - Seriously impaired. HALCYON was immobilised due to machinery damage and would have foundered in heavy weather or on a long tow. The W/T was out of action.
DUNDALK 16th-17th Oct., 1940	One Mine type unknown (Probably contact)	Sunk	DUNDALK, whilst minesweeping in company with SUTTON, SPEEDWELL and FITZROY off the east coast of England was damaged by a mine which exploded on her starboard side abreast the forward boiler room. A hole was blown in the ship's side 30 ft. long from the upper deck to below the waterline. No.1 boiler room flooded immediately and No.2 boiler room flooded slowly, and all steam was lost. DUNDALK eventually capsized, trimmed by the bow and sank 8¼ hours after the explosion. As the ship capsized the hole in the ship's side was seen to taper to a split which crossed the keel and passed a short distance up the port side.
ELGIN 6th Nov., 1940	One Mine Non-contact Acoustic	6 weeks	ELGIN was near the Sunk Light Vessel when an explosion 50 yards off the starboard beam caused minor hull damage. Most of the castings of auxiliary machinery were cracked. Fighting Efficiency - Impaired. Vessel was immobilised and taken in tow.
SALTBURN 9th Jan., 1941	One Near Miss size and type unknown Bomb	Nil	SALTBURN, whilst in Portsmouth Dockyard, sustained minor damage from the blast of the bomb which sank H.M. Tug SWARTHY. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FITZROY 14th Jan., 1941 D.N.C.4B/R60	One Non-Contact Acoustic Mine depth of water 12 fathoms	4½ months	FITZROY was operating with other units in the North Sea near the Ship Wash when an explosion occurred about 45 ft. to starboard abreast the forward boiler room. Ship was proceeding at 13 knots at the time of the explosion. The hull plating, starboard side was strained and leaking from amidships forward. Slow flooding occurred in all compartments below the lower deck with the exception of the after peak. The main steam bulkhead valve (cast iron) was fractured and serious damage sustained to auxiliary machinery castings. The main switchboard was wrecked. Fighting Efficiency - Seriously impaired. FITZROY was immobilised and all machinery out of action. All power and lighting was lost. The forward 4 inch gun was out of action due to shock. Vessel was unseaworthy and was beached at Harwich. REMARKS The ship's report contained the following proposals:- Some form of cross connection between the main steam pipes should be fitted. Downton suction should be run below the upper deck in this class of vessel so as to be accessible for emergency repairs.
HUNTLEY 31st Jan., 1941	One Direct Hit delay action fuzed Bomb One Direct Hit or Near Miss type unknown Bomb Machine gun attack	Sunk	HUNTLEY was attacked three times by enemy aircraft whilst on passage from Mersa Matruh to Tobruk. 1st Attack caused one direct hit in the vicinity of No.1 boiler room and machine gun fire damaged the bridge. Severe damage was sustained to side plating and internal structure between the boiler rooms. Ship was immobilised. 2nd Attack was by machine gun only and caused casualties among the crew. 3rd Attack caused a direct hit or a very near miss on the stern. The hit caused two depth charges to explode which in turn disintegrated the vessel from the stern to the minesweeping winch (30 ft.). The vessel sank half an hour after the first attack, 4 miles from Ra Abu Lahu.

MINESWEEPERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRAMBLE 20th Feb., 1941	One Direct Hit 250 kgm type unknown Bomb. Machine gun attack	4 days	BRAMBLE, whilst approaching Harwich in company with SPEEDY, SEAGULL, SHARPSHOOTER and BRITOMART, was attacked by two enemy aircraft. The bomb struck the ship's side in way of the ship's office and came to rest at the after end of the cabin flat without exploding. The top half of the mainmast was carried away by the low flying aircraft. Superficial damage was caused by machine gun fire. Fighting Efficiency - Not impaired. Temporary loss of W/T aerials due to damage to mast.
BLACKPOOL 24th Feb., 1941	Machine gun attack	Nil	BLACKPOOL, whilst sweeping off the N.E. Coast of Scotland, was attacked by enemy aircraft which raked her with machine gun fire. Superficial damage was sustained. Fighting Efficiency - Not impaired.
BRITOMART 15th March,1941	One Direct Hit 100 kgm delay action fuzed Bomb	2½ months	BRITOMART was attacked by enemy aircraft whilst at anchor at Rye Harbour, Sussex. The bomb hit the starboard side of the superstructure aft, pierced the upper deck and passed out through the ship's side, port, above the waterline. The bomb exploded an unknown distance underwater. The hull plating between 75 station and the stern was corrugated and the ballast tank was leaking. The sliding feet of the port and starboard L.P. turbines were fractured. Fighting Efficiency - Seriously impaired. The machinery damage restricted the ship to steaming at slow speeds for short periods. BRITOMART proceeded to Portsmouth at slow speed under her own power.
STOKE 20th April,1941	One Near Miss size and type unknown Bomb	2 weeks	STOKE sustained minor structural damage caused by a near miss bomb. The outer bottom plating was strained and leaking. Internal flooding took place which developed to 12 tons per hour. Fighting Efficiency - Impaired. Speed was reduced due to flooding, but vessel returned to port under her own power.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FERMOY 29th April, 1941	One Direct Hit size and type unknown Bomb	See Below	FERMOY, whilst in No.5 deck at Malta, during an air raid, sustained a direct hit which caused severe structural damage and internal flooding. Vessel settled by the bows. Fighting Efficiency - Seriously impaired.
ABINGDON 30th April, 1941	One Non-contact Acoustic Mine	Nil	ABINGDON sustained minor damage when she exploded an acoustic mine while sweeping. Fighting Efficiency - Not impaired.
FERMOY 30th April, 1941	One Direct Hit size and type unknown Bomb	Wrecked beyond repair	FERMOY sustained further serious damage during an air raid on Malta Dockyard. The deck was flooded and the vessel sank. Vessel damaged beyond repair and the wreck broken up.
SELKIRK 4th May, 1941 D.N.C.4B/R64	One Near Miss 500 kgm delay action fuzed Bomb	3 months	SELKIRK, while at anchor 5 cables from Rough Buoy, was damaged by a near miss bomb which fell 15 ft. to port abreast the after end of the engine room. Minor structural damage was sustained to the outer bottom plating. The main inlet on the port side was fractured and the engine room and after store room were flooded. Fighting Efficiency - Seriously impaired. Vessel was immobilised and taken in tow. The steering gear and W/T was out of action due to shock. REMARKS The ships report contained the following proposal:- A submersible portable pump should be carried to expedite pumping in an emergency.
STOKE 7th May, 1941	One Direct Hit size and type unknown Bomb	Sunk	STOKE was sunk during an air attack on Tobruk. No further details available.

MINESWEEPERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WIDNES 18th May, 1941	One Near Miss size and type unknown Bomb Machine gun attack	Nil	WIDNES was attacked by dive bombers and sustained minor structural damage from a near miss. Superficial damage was caused by splinters and machine gun bullets. Fighting Efficiency - Not impaired.
WIDNES 20th May, 1941	Three Near Miss size unknown delay action fuzed Bombs	Beached	WIDNES, while in position one mile west of Cape Depano, was damaged by near misses which caused minor structural damage. The hull plating was strained and leaking and slow flooding of the forward boiler room, engine room and gland spaces took place. The starboard condenser circulator discharge was fractured. Fighting Efficiency - Seriously impaired. Starboard engine was out of action and the pumps were unable to cope with the flooding. WIDNES was beached in Suda Bay.
SELKIRK 8th Aug., 1941	Near Misses number unknown size and type unknown Bombs	Nil	SELKIRK sustained minor damage to the hull and to the dynamo and capstan engine as a result of near miss bombs. Fighting Efficiency - Not impaired.
ALBURY 7th Nov., 1941	Four Near Miss delay action fuzed Bombs	5 weeks	ALBURY, whilst proceeding at 13 knots off the East coast of Scotland, was attacked by enemy aircraft. The bombs fell about 30 yards astern and caused only minor machinery damage. No structural damage was sustained. The shunt regulators of dynamos and various pipe flanges on the ship's side were blown off. Fighting Efficiency - Not impaired. REMARKS The various anti-shock arrangements undoubtedly saved the machinery from serious damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROSS 1st Dec., 1941	One Direct Hit 250 lb. delay action fuzed Bomb	10 days	ROSS, whilst proceeding off the East Coast of Scotland at $7\frac{1}{2}$ knots, was damaged by a bomb which hit the cable locker port side and passed out through the starboard side, below the waterline, before exploding. The cable locker was flooded. Fighting Efficiency - Not impaired.
SPEEDY 17th Dec., 1941	Four Direct Hits several 'Shorts' direct action fuzed 4 inch probably 5 inch Shell	8 weeks including refit	SPEEDY was in action with enemy destroyers off Govodetski Light, Russia, moving at 11 knots and was damaged by shell fire. A direct hit occurred on the after gun, seriously damaging it and splinter damage was sustained in the vicinity of the burst. Two direct hits shot away the foremast and the wireless aerials. A direct hit on the forward gun, did not detonate but carried away the elevating gear. Superficial damage was caused by splinters from shorts. Fighting Efficiency - Seriously impaired. Main armament out of action.
ROTHESAY 9th Jan., 1942	One Non-contact acoustic Mine	3 weeks	ROTHESAY, whilst operating off the south east coast of England, was damaged by a mine which exploded 30 to 40 yards off the starboard bow. No major damage was sustained to the hull but the Gyro, A/S gear, W/T and minor auxiliary machinery were damaged by shock. The 3 inch gun was unseated and unable to train. Fighting Efficiency - Not seriously impaired.
BRITOMART 24th Jan., 1942	Near Miss number and type unknown Bombs	Nil	BRITOMART was operating off North Russia when she sustained superficial damage from near miss bombs. Fighting Efficiency - Not impaired.
PROTEA 13th Feb., 1942	One Near Miss 250 lbs. direct action fuzed Bomb	Nil	PROTEA was at anchor in Tobruk Harbour when a near miss bomb off the starboard quarter caused splinter damage to the upperworks. Fighting Efficiency - Not impaired.
DELORAINE (H.M.A.S.) 5th March, 1942	Bombs	Nil	DELORAINE, whilst operating in the Far East, was attacked twice and damaged by enemy aircraft. Effect on Fighting Efficiency - Not known.

MINESWEEPERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HUSSAR 17th March, 1942	Bomb	Nil	HUSSAR was damaged during an air raid on Murmansk. Effect on Fighting Efficiency - Not known.
SHARPSHOOTER 24th March, 1942	Rammed submarine	3 months	SHARPSHOOTER rammed an enemy submarine at 13 knots whilst operating in the Barents Sea. The fore peak and rudder were damaged. Fighting Efficiency - Not seriously impaired.
ABINGDON 1st April, 1942	Bomb	Beached	ABINGDON sustained serious damage during an air raid on Malta. The vessel was beached, broke in two and was considered a total loss.
FAREHAM 2nd April, 1942	Two Near Miss direct action fuzed Bombs	2 months	FAREHAM was escorting a convoy in the Mediterranean when enemy aircraft attacked on several occasions. Splinters from near miss bombs caused damage to hull and upper works, port side, at and above the waterline. Fighting Efficiency - Not seriously impaired.
POOLE 25th May, 1942	Mine	5 weeks including refit	POOLE was minesweeping in Diego Suarez Bay, Madagascar, when a mine explosion caused severe damage and destroyed the minesweeping gear. Fighting Efficiency - Seriously impaired.
FITZROY 27th May, 1942	One Contact Mine	Sunk	FITZROY, whilst operating off the East Coast of England, was damaged by a mine which exploded under the ship on the port side between the boiler rooms. These M/C spaces flooded immediately, and the ships lighting failed. A hole 18 ft. long was blown in the shell plating under the boiler room. FITZROY heeled to starboard and sank in 10 minutes.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LEDA 14th June, 1942	Five Near Miss delay action fuzed Bombs	2 days	LEDA was attacked by enemy aircraft whilst lying at anchor at Mishukov Point. The bombs fell off the port bow and along the starboard side. Only minor structural damage was sustained. The sliding feet of both L.P. turbines dropped due to shearing of rigid-resilient bearing and keep plates to fixed feet were partially crushed. Fighting Efficiency - Slightly impaired. REMARKS The clearance between the fixed feet and the after keeps of turbine to be increased to allow the turbine feet to clear and prevent crushing of keeps when the crushing/shearing devices collapse.
HEBE 15th June, 1942	One Direct Hit probably 6 inch direct action fuzed Shell	Nil	HEBE was attacked by enemy forces in the Mediterranean. A shell hit on the port side of the forecastle deck and burst on impact. Extensive but minor splinter damage was sustained. Electric cables to L.L. and S.A. gear and L.P. circuits were pierced by splinters. Fighting Efficiency - Slightly impaired.
HEBE 16th June, 1942	One Contact Mine	6 weeks	HEBE, whilst entering Malta harbour at 10 knots, struck a mine on the port side abreast the forward magazines. The side plating was holed 24 ft. by 16 ft., and internal structure severely damaged. The 4 inch and S.A. magazines and L.P. room were flooded to the waterline. Extensive damage to the electrical equipment was caused by the flooding. The starboard shaft was bent and the propeller damaged. Fighting Efficiency - Seriously impaired. Loss of speed and manoeuvrability due to damaged propeller and shaft. W/T, gyro, asdic, and S.A. gear out of action.
GOSSAMER 24th June, 1942	One Direct Hit Bomb	Sunk	GOSSAMER was attacked while at anchor in Kola Inlet, Russia. A direct bomb hit just forward of the winch caused the ship to sink in eight minutes. No further information available.

MINESWEEPERS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLYTH 11th July, 1942 D.N.C.4B/R114	One Direct Hit 250 kgm delay action fuzed Bomb	16 days	BLYTH, whilst minesweeping off Dartmouth, was attacked by enemy aircraft. The bomb struck the beef screen, smashed the starboard boat davit and exploded below water abreast the engine room. Plating under the engine room was set in 2 inches at the turn of the bilge. Auxiliary machinery was damaged by shock and the cast iron scupper pipes fractured, causing minor flooding. The holding down bolts of the 3 inch gun were sheared. Fighting Efficiency - Seriously impaired. One boiler room was shut down and speed was reduced to 10 knots. 3 inch gun out of action. REMARKS This incident emphasised that storm valves should not be fitted below the deep waterline and, if of cast iron, should be enclosed in cement (A.F.O.2178/41).
SELKIRK 18th Sept., 1942	One Near Miss 250 kgm Bomb	2 months	SELKIRK, during an air raid on the Dartmouth area, was berthed alongside a collier. The collier received a direct hit. SELKIRK was severely shaken and the structure generally strained from the fore end of bridge to the 12 pounder gun on the quarter deck. Minor leaks developed in the forward magazine and the gland spaces due to strained rivets. Pipes to the main suction line and fresh water system were fractured. The plummer blocks were fractured and other minor damage occurred to castings of main and auxiliary machinery. Elevating and training gear of the forward 12 pounder gun was very stiff after the explosion. Shock damage was sustained to equipment in the W/T office and the gyro compass and repeaters were badly shaken. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LEDA 20th Sept.,1942 D.N.C.4B/R182	(i) One contact Torpedo fired from submarine (ii) Gunfire from own forces	Sunk	LEDA was proceeding in the Greenland Sea at 9½ knots when a torpedo struck the starboard side amidships on the bulkhead between the boiler rooms. The main explosion was followed almost immediately by two smaller ones, probably the boilers exploding. The hull structure starboard side amidships from the boat deck to below the waterline and about 70 ft. of the boat deck was blown away. The funnel was split up its entire length on the starboard side. Immediate flooding occurred in both boiler rooms, and slow flooding was caused in the provision room due to damage to the bulkhead at the fore end of the forward boiler room. Fires started on the upper deck and in the forward boiler room. Communications between the bridge and engine room, and all steam and electrical power failed immediately. LEDA listed 20 degrees to port, settled and gradually heeled on her beam ends. Twenty minutes after being torpedoed the ship capsized and floated with the bow and stern out of water. The wreck was later sunk by gunfire of own forces.
HAZARD 24th Oct., 1942	Mine	Nil	HAZARD, whilst detonating acoustic mines in Yugorsky Strait, Russia, sustained minor damage due to a mine which exploded in the vicinity of the ship. Fighting Efficiency - Not seriously impaired.
CROMER 9th Nov., 1942	One Mine Contact depth of water 60 fathoms	Sunk	CROMER was proceeding in the Mediterranean off Mersa Matruh when a mine exploded on the port side just abaft the bridge. The ship immediately broke in two and capsized to starboard. The after portion of the ship sank in a few seconds but about 20 ft. of the forward portion remained above water for 20 minutes.
BENGAL (H.M.I.S.) 11th Nov., 1942	Shell	Nil	BENGAL, whilst in action with an enemy surface raider five hundred miles south west of the Cocos Islands, was damaged by shell fire. A large hole was blown in the starboard side of the bow, above the waterline. The forward and after ends of the ship were damaged by splinters. Fighting Efficiency - Impaired.
ALGERINE 15th Nov., 1942	Torpedo fired from submarine	Sunk	ALGERINE was sunk while operating 5 miles north of Cape Carbon, Algeria. No further information available.

MINESWEEPERS - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CADMUS 4th Dec., 1942	Rammed submarine	10 days	CADMUS sighted and rammed an enemy submarine whilst on patrol off Freetown, Sierra Leone. Speed at ramming was 12 knots, CADMUS struck the submarine a glancing blow abreast the conning tower. The bow structure of CADMUS was buckled and torn at the extreme fore end and the port bilge keel was distorted for about 20 ft. The port side bottom plating under the boiler room was forced slightly inboard. Fighting Efficiency - Not impaired.
BRAMBLE 31st Dec., 1942	Shell	Sunk	BRAMBLE was sunk by gunfire from enemy surface craft while operating in the Barents Sea. No further details available.
ALARM 2nd Jan., 1943	One Near Miss Bomb	See later action below	ALARM sustained extensive structural damage from a near miss bomb which exploded under her stern during an air raid on Bone harbour. Fighting Efficiency - Seriously impaired. Ship immobilised and possibly beached.
ACUTE 8th Jan., 1943	One Torpedo dropped by aircraft	6 weeks	ACUTE was attacked by enemy aircraft in the Mediterranean. The torpedo struck right aft in the vicinity of the propeller but failed to explode. The propeller was damaged. Fighting Efficiency - Impaired.
ALARM - Feb., 1943	One Direct Hit Bomb	Ship not repaired	During salvage operations on ALARM in Bone harbour a direct hit bomb exploded in the engine room. The ship's structure abaft forward bulkhead of the engine was seriously damaged. Fighting Efficiency Ship was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PIRIE (H.M.A.S.) 11th April, 1943	(i) One Direct Hit delay action fuzed Bomb (ii) Cannon fire	Nil	PIRIE, whilst escorting a convoy off New Guinea at 14½ knots, sustained a direct bomb hit on the roof of the bridge. The bomb passed out through the fore side of the bridge and burst on the middle line of the upper deck. The crew of the 12 pounder gun, on the forecastle deck were killed and a minor fire started in kit lockers on the mess deck. The fore end of the ship was raked by cannon fire, deck planking damaged and forecastle deck perforated. Fighting Efficiency - Not seriously impaired.
SPEEDY 15th May, 1943 D.N.C.4B/R259	One Mine probably Italian type J (325 lbs. charge) or type K (440 lbs. charge) Contact depth of water 68 fathoms	11 months	SPEEDY was minesweeping at 5 knots off the St. Elmo Light in the Mediterranean when an explosion occurred under the ship at the turn of the bilge abreast the bridge, starboard side. The bottom plating was holed for 10 ft. long by 16 ft. deep. For a length of 38 ft. it was severely distorted and forced inboard from 8 ft. to port of the middle line to the lower deck level on the starboard side. The keel was blown upwards and wrecked for 20 ft. The lower deck in way of the explosion was destroyed for 15 ft. and the upper deck was distorted and split. A buckle girthed the ship at the after end of the after superstructure between and below lower deck, port and starboard. The starboard forward 4-inch magazine and storerooms etc. abreast the bridge from keel to waterline for 25 ft., flooded immediately. Slow flooding occurred in the S.A. magazine, low power room and C.O2 compartment. The ship listed 10 degrees to starboard. All L.P. electrical supply failed. H.P. supply and equipment in damaged area was out of action. Fighting Efficiency - Seriously impaired. The ship was only able to steam at reduced speed. The forward 4 inch gun was out of action due to the weakened condition of the structure and the forward magazine flooded. Type 271 radar was out of action. REMARKS:- 1. It is desirable for a 50 ton diesel driven portable pump to be supplied to this class of ship for salvage and firefighting duties. 2. It is desirable for the generators of the main transmitter to be separated.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FANTOME 20th May, 1943 D.N.C.4B/R276	One Contact Mine German Type X 330 lbs. Hexamite. Depth of water 23 fathoms	Indeterminate (Ship not repaired)	FANTOME, while minesweeping at 10 knots in the Mediterranean, was damaged by a mine which exploded under her stern probably in contact with the starboard propeller. A hole was blown in the ship's bottom in way of the steering compartment 15 ft. by 12 ft. Structure of the steering compartment and minesweeping store was wrecked. The rudder was blown away. The ship's bottom and lower deck were forced upwards to touch the upper deck which was blown upwards a maximum of 6 ft. Severe structural damage extended to the after bulkhead of the engine room. Whipping caused a buckle which girthed the ship in this vicinity. The after end of the ship was completely flooded to the after bulkhead of the engine room, in which compartment minor controlled flooding occurred. The after end of the quarter deck was seven feet below the waterline. Both "A" brackets were fractured, the port shaft hung down 10 ft. below the keel and the starboard shaft was blown up into the ship. The steering gear was wrecked. All H.P. electrical circuits and equipment abaft the engine room was out of action because of flooding or damage. The L.P. supply was lost temporarily and the type 271 radar damaged by shock. All the depth charge equipment aft was seriously damaged. Fighting Efficiency - Seriously impaired. Ship was immobilised and taken in tow. Type 271 radar and after depth charge equipment was out of action. The after oerlikons could not be fired owing to weakened structure. REMARKS 1. Bulkhead 84¾ between stoker's mess and 'LL' generator compartment, lower to upper decks, to be made watertight. 2. Rod gearing to be fitted from the upper deck to all valves of the ventilation system which affects the refrigerating machinery compartment, seamen's lower mess deck and asdic compartment. 3. Extension spindles to be fitted to the engine room master drain valves on the reserve feed tanks. 4. In new construction ships the main circulator bilge suction intake is to be sited nearer the centre of the engine room.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BOSTON 16th July, 1943	Near Miss Bombs	Nil	BOSTON, during an air raid on Syracuse Harbour, sustained minor damage due to near misses. Fighting Efficiency - Not impaired.
POOLE 16th July, 1943	One Near Miss Bomb	Nil	POOLE, during an air raid on Syracuse Harbour, sustained minor damage due to a near miss. Fighting Efficiency - Not impaired.
HYDRA 1st Sept., 1943	Shell "Shorts"	1 month	HYDRA, whilst operating off the French Coast, was fired on by enemy coastal batteries. Splinters from shorts put the W/T and gyro compass out of action. The ship was later straddled by a 12 gun salvo when just off Dover. This caused extensive but not serious splinter damage to the hull. Fighting Efficiency - Slightly impaired. W/T and gyro compass was out of action.
CADMUS 9th Sept., 1943	Three Near Miss probably 250 kgm Bombs	Nil	CADMUS, while on minesweeping operations north of Salerno, was near missed by three bombs one 30 ft. off the port quarter, one 50 ft. astern and the other 100 ft. off the starboard quarter. No serious structural damage was sustained. Some welding in the port reserve feed tank was fractured. The H.P. balance pipe to the bellows piece on the port main engine was severed. Loss of vacuum temporarily reduced the ship's speed until repairs were effected. Some minor shock damage to the auxiliary machinery and electrical instruments resulted. Fighting Efficiency - Temporarily impaired. Speed was temporarily reduced due to a fractured balance pipe.
HYTHE 11th Oct., 1943	One Contact Torpedo fired from submarine	Sunk	HYTHE, while escorting a convoy in the Mediterranean at 8 knots, was struck by a torpedo on the port side, abreast the bridge, between the forward boiler room and the provision room. The bow broke off forward of the bridge, and the after part of ship, still under way with the main engines running bore down on the fore end. The mast collapsed on to the bridge and it was believed that the funnel also collapsed. The bridge was completely wrecked and apparently set on fire. The ship settled very rapidly by the bow and sank on an almost even keel about four minutes after being hit.

MINESWEEPERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CROMARTY 23rd Oct., 1943	One Contact Mine in 57 fathoms	Sunk	CROMARTY was minesweeping off Maddelena, North Sardinia, at 9 knots, when a mine exploded under the port side abreast the fore end of the bridge. The bridge structure was severely damaged, and the forecastle deck was buckled athwartships at the base of the funnel, which was afterwards leaning 15 degrees to starboard. It is probable that the fore bulkhead of the machinery spaces was blown in and the forward boiler room was flooded. On inspection the engine room was found to contain a lot of debris though no flooding was visible and the main engines appeared intact and continued to run for a time until shut down. The structure forward of the bridge broke away and, after floating bow uppermost, finally sank. Immediately after the explosion the main part of the ship settled by the head and listed heavily to starboard; the stern was soon out of water with the port propeller clear. The ship started to turn over about 3 minutes after the explosion. Within 6 minutes she had completely capsized and sunk by the head.
RHYL 1st Nov., 1943	One Near Miss Bomb	Nil	RHYL was at anchor in Pozzoli Bay, in the vicinity of Naples, when an attack by 20 to 30 bombers developed during which the ship sustained minor damage from a near miss. Fighting Efficiency - Not impaired.
RHYL 10th Nov., 1943	One Near Miss 250 kgm delay action fuzed Bomb in 7 fathoms	8½ months including fitting of type 86 W/T set	RHYL, while at anchor in Pozzoli Bay, in the vicinity of Naples, was near missed to port, just off the quarter deck by a bomb which burst under the ship at a probable depth of about 40 ft. The hull plating at the after end was indented abaft the engine room and some damage was caused to the internal structure. General straining of the structure at the after end caused minor leaking at the laps and butts of hull plating. Both shafts and main engines were out of alignment, with the plummer blocks distorted. A cover plate on the evaporator distiller was fractured. Shock damage was sustained by electrical and W/T equipment. Fighting Efficiency - Seriously impaired. Ship was immobilised due to damaged main engines and shafting. Endurance was reduced to 36 hours due to a damaged evaporator-distiller. The ship was able to receive but not to transmit W/T.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CADMUS 20th Nov., 1943	(i) One Near Miss 50 kgm delay action fuzed Bomb (ii) Machine gun and Cannon fire	Nil	CADMUS, while stationary in the Gulf of Gaeta, off the west coast of Italy, was attacked by aircraft with various calibre weapons, including 50 kgm and anti-personnel bombs, cannon and machine guns. One of the 50 kgm bombs appeared to skip on the water surface towards the ship, and finally detonated underwater about 5 yards off the starboard quarter. Only minor damage was caused, the most serious effect being a fracture in the bulkhead between No.8 oil fuel tank and the port reserve feed tank. Leakage of oil fuel resulted in the contamination of all feed water. One forced lubrication supply pipe was fractured. Shock damage caused temporary failure of gyro compass and lighting in the engine room and boiler room. Upper deck fittings received minor damage from machine gun and cannon fire. Fighting Efficiency - Slightly impaired. Endurance was reduced by the contamination of feed water.
HEBE 22nd Nov., 1943	Probably a Ground Mine type Sammy in $8\frac{1}{2}$ fathoms charge about 1500 lbs.	Sunk	HEBE was minesweeping off Bari Harbour, on the east coast of Italy, when an explosion occurred off the port side abreast the bulkhead between the boiler rooms, followed by a second explosion in about the same position. Evidence indicated that one boiler burst. The forward 4 inch gun was lost overboard. HEBE listed heavily to port and capsized in about 4 minutes. She began to break in two before disappearing.
ARDROSSAN 26th Nov., 1943 D.N.C.4B/R290	One Moored Mine in 22 fathoms type G.R. charge 90 lbs.	4 months	ARDROSSAN was minesweeping off Great Yarmouth, at 6 knots, when a mine exploded about 4 ft. abaft the stern. The transom plating was buckled and forced inboard a maximum of 18 inches, with one hole measuring about 18 ins. by 5 ins; the port and starboard side plating abreast the steering compartment and below the knuckle line was corrugated between frames; the rudder was sheared off at the stock and lost. The ballast tank under the steering compartment was flooded, leaks in steering compartment spirit room and gland space were kept under control. The fore peak was counterflooded to correct trim. The steering engine was damaged, and guide rods in the steering gear were distorted. Fighting Efficiency - Seriously impaired. The ship was partially immobilised by the loss of the rudder and damage to the steering gear. ARDROSSAN steamed clear of the minefield but was later taken in tow.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FELIXSTOWE 18th Dec., 1943	One Moored Mine probably type G.R. Charge 90 lbs.	Sunk	FELIXSTOWE was minesweeping off Maddalena, North Sardinia, at 10 knots, when a mine exploded very close to, or in contact with, the stern. The stern structure in way of the steering compartment was wrecked; the hull plating was split and buckled to below the waterline as far forward as the after bulkhead of the engine room. A whipping buckle crossed the quarter deck; the lower deck was split and buckled near the ward room. The steering compartment, minesweeping flat, after cabin flat and engine room flooded rapidly. After the explosion the ship immediately heeled to starboard and settled by the stern until the quarter deck was awash. The starboard main engine and steering engine were put out of action. FELIXSTOWE turned over and sank by the stern about one hour and forty minutes after the explosion.
CLACTON 31st Dec., 1943	One Moored Contact Mine in 200 fathoms probably Italian type K Charge 440 lbs.	Sunk	CLACTON was escorting a convoy off the east coast of Corsica when an explosion occurred under her in the vicinity of the boiler rooms. The ship immediately heeled to port and settled by the stern. Within 4 minutes the list was such that a hole extending to about half-way up the starboard side was revealed under the bottom near the boiler rooms. About 20 minutes after the explosion the stern portion abaft the break of forecastle parted and sank about 20 minutes later. The fore end sank more slowly; after 2 hours a few feet of the bows were still visible.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CIRCE 23rd April, 1944 D.N.C.6/R320	One Moored Mine in 24 fathoms	8 months	CIRCE was minesweeping off the west coast of Italy, in the vicinity of Anzio, when a mine brought up in the sweeps is thought to have detonated on the transom, slightly to port of the middle line and about 2 ft. below the waterline. The transom plating was wrecked and blown forward, and the side plating in the immediate vicinity was corrugated between frames. The upper deck over steering compartment was blown upwards, to a maximum height of $2\frac{1}{2}$ ft., and the steering compartment bulkhead was split and buckled; the watertight door in it was destroyed. The forward bulkhead in the minesweeping store was buckled above the lower deck, and the watertight door blown through its frame. The main suction and firemain were fractured in the minesweeping store. Water flooded freely into the steering compartment, but was kept under control in the minesweeping store. Slight flooding in the 'LL' compartment and messdecks aft of the engine room was later pumped out. The ship listed slightly to port and settled by the stern. Depth charges and heavy gear aft were jettisoned, and oil from the after tanks was pumped overboard to correct list and trim. Minor fires started in the minesweeping flat and steering compartment. The steering engine and telemotor gear were put out of action. Minor electrical equipment in the immediate vicinity of the explosion was damaged. Fighting Efficiency - Seriously impaired. The ship had to be taken in tow as the rudder was jammed "hard to port". Minesweeping and depth charge gear was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ELGIN 3rd May, 1944	One Ground Mine in 20 fathoms	Indeterminate (Ship not repaired)	ELGIN was minesweeping in the English Channel at 12 knots, when a mine exploded about 50 yards off the starboard quarter. There was no major hull damage but the bottom plating was split in two places under the engine room. Some bulkheads suffered minor damage. Flooding in the engine room was controlled. The ship listed a maximum of 8 degrees to port; this was later reduced to 5 degrees by pumping. The starboard main engine was out of action owing to a damaged circulating pump. The port engine could have been used but with difficulty due to the condenser, air pump and one main feed pump being damaged. Extensive damage was caused to castings of auxiliary machinery; the steering engine bedplate was fractured. All electrical power failed when the main breakers "came off" due to shock. Steam to the turbo-generator was lost through a fractured pipe. Lighting was supplied from the diesel generator at the time of damage. W/T equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised by shock damage to main and auxiliary machinery. The steering gear and W/T equipment were out of action.
STORMCLOUD 30th May, 1944	One Non-contact Mine	6 weeks	STORMCLOUD was minesweeping in the English Channel when an explosion occurred under the ship slightly to starboard. The hull plating port and starboard abreast both boiler rooms and on the starboard side from the engine room to the cut up was corrugated between frames. Abreast the spirit room and cooling machinery compartment leaks occurred through strained laps and butts of plating. Serious internal damage was caused in both boiler rooms. Both boilers were out of action due to burst oil fuel pipes. Fighting Efficiency - Seriously impaired. The ship was immobilised.
BLYTH 11th June, 1944	Mine	Nil	BLYTH, sustained very minor damage whilst operating off the Normandy beaches. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RATTLESNAKE 15th June, 1944	Probably an Acoustic Ground Mine	1 month	RATTLESNAKE was minesweeping off the Normandy beaches at 13 knots, when an explosion occurred about 15 yards off the port side just abaft the funnel. The hull plating in way of the after boiler room was corrugated with fairly extensive but not serious structural damage internally. No flooding occurred. Lighting partially failed due to blown fuses. Fighting Efficiency - Not seriously impaired. The ship was later able to raise steam in the forward boiler room, and proceeded under her own power at 9 knots.
ILFRACOMBE 21st June, 1944	Ground Mines	9 days	ILFRACOMBE was minesweeping in the English Channel when ground mines exploded about 50 yards off her starboard beam. The gyro compass and asdic dome were shattered. The type 291 radar was put out of action. Fighting Efficiency - Impaired.
PERSIAN 23rd June, 1944	One Ground Mine in 12 fathoms	4½ months including refit	PERSIAN was minesweeping off the French coast, at 10 knots, when a mine exploded under the stern slightly to starboard. The hull plating over the after end abaft the cut up was corrugated and the rudder plating was distorted. Internal structure suffered minor damage. The watertight compartment under the steering flat flooded to the waterline. Slow flooding in the starboard gland space and depth charge and small arms magazines was kept under control. The starboard main engine was put out of action and the efficiency of the port engine was considerably reduced apparently because the shafts were bent. The seating of the main circulating pump was buckled and its casting fractured. The steering engine was damaged and the rudder stiff to operate. Other auxiliaries sustained minor shock damage. All dynamos came off the board due to shock, and lighting temporarily failed. The gyro compass was damaged. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged shafting. The steering engine and gyro compass were out of action.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRIDPORT 25th June, 1944	One "Short" from Shell probably 9 inch	12 days including boiler cleaning	BRIDPORT, while minesweeping off Cherbourg, was engaged by shore batteries, and a shell burst off the port side in the vicinity of the forward 3 inch gun. One splinter made a hole in the ship's side about 5 inches diameter, 6 ft. above the waterline. Other splinters caused minor damage to structure near the bridge. Fighting Efficiency - Not impaired.
PIQUE 25th June, 1944	Non-contact Mines	9 days	PIQUE, while minesweeping off the Normandy beaches, sustained minor damage from mines which exploded nearby. Fighting Efficiency - Impaired.
BLACKPOOL 29th June, 1944	One Direct Hit with direct action fuzed probably 4.7 inch Shell	Nil	BLACKPOOL, whilst minesweeping off Cherbourg, was engaged by shore batteries which scored a direct hit on the starboard side of the forecastle deck just beside the 3-inch gun. The gunner's store was wrecked and the forecastle deck holed 6 ft. by 3 ft. Fittings near the burst received minor splinter damage. One smoke float ignited and was thrown overboard. The starshell ready-use locker was lost. Fighting Efficiency - Not impaired.
FRIENDSHIP 5th July, 1944	One Non-Contact Mine probably Acoustic	3 months including refit	FRIENDSHIP, while operating off the Normandy beaches, exploded a mine some distance from her. The explosion did not cause any important structural damage; no leaks were reported. Shock caused major defects to the main engines. Fighting Efficiency - Impaired.
MAGIC 6th July, 1944	Probably a Human Torpedo	Sunk	MAGIC was at anchor off the Normandy beaches, when a heavy explosion occurred abaft the engine room. The ship quickly listed to starboard and settled by the stern with her back broken. The engine room flooded and all lighting failed. Six minutes after the explosion, MAGIC settled stern first, capsized and floated with about 80 ft. of the bow just awash.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CATO 6th July, 1944	Probably a Human Torpedo	Sunk	CATO was engaged in rescuing survivors from MAGIC, off the Normandy beaches, when an explosion occurred just forward of the bridge under the wardroom flat. Large holes were visible on both sides of the ship in the vicinity of the explosion and her back was broken just forward of the bridge. The ship settled by the bows, listing to port; the upper deck being soon awash. Two hours and twenty five minutes after the explosion, when about to be taken in tow, CATO capsized and floated bottom upwards with the stern just above water.
PYLADES 8th July, 1944	One probably two Human Torpedoes	Sunk	PYLADES was operating off the Normandy beaches when an explosion occurred aft, and one minute later a second explosion also occurred aft. Orders were given for the main engines to be stopped and an inspection of the ship made. It was found that the minesweeping flat aft had been blown away under the upper deck, the minesweeping winch reels had been torn from their seatings, and the upper deck over the after engine room was corrugated athwartships but not fractured. The bridge Oerlikons and standard compass had been torn from the deck. The after engine room flooded rapidly and a fire was suspected in this compartment. The ship settled by the stern and listed heavily to port. This list slowly increased until the ship had completely turned over, with her stern submerged and the forefoot about 30 ft. above water. PYLADES sank ten minutes after the first explosion.
PELORUS 10th July, 1944	One Non-Contact Mine in 18 fathoms	2½ months including refit	PELORUS was minesweeping off the Normandy beaches, at 11 knots, when a mine exploded about 20 yards off the port beam causing extensive but not serious structural damage. No flooding occurred but one forward oil fuel tank was slightly contaminated. Minor shock damage affected both main and auxiliary machinery. All ventilation supply and exhaust fans, with the exception of the engine room supply failed temporarily. The 4-inch gun could not be trained to port due to the distortion of the base plate. All ready-use depth charges were release overboard by shock. Shock also damaged the gyro compass, rangefinder, type 271 radar, A/S and E/S equipment. Fighting Efficiency - Seriously impaired. The efficiency of the 4-inch gun was considerably reduced and the gyro compass was out of action. The ship returned to the assault area under her own power at slow speed.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GORGON 11th July, 1944	One Ground Mine	2 weeks	GORGON was operating in the English Channel, at 6 knots, when a mine exploded about 20 yards off the starboard beam causing minor structural damage. The port stern tube glands and rudder post were leaking, otherwise no flooding occurred. The holding down bolts of the main engines were stripped. One main and two auxiliary sea suction pipes to the main engines were fractured. The steering gear was damaged and the rudder was suspected of being out of alignment. There was some shock damage to auxiliary machinery. The depth charge rails were damaged and distorted. Shock extensively damaged radar, gyro and magnetic compasses, W/T receiver, telephone system and E/S equipment. Fighting Efficiency - Seriously impaired. The main engines were temporarily out of action. Radar and E/S gear were permanently out of action.
CHAMOIS 21st July, 1944	One Ground Mine in 16 fathoms probably Acoustic	Indeterminate (Ship placed in reserve)	CHAMOIS was minesweeping off the Normandy beaches, at 8 knots, when an explosion occurred about 12 ft. to port and abreast the after end of the bridge. The hull plating below the waterline from the bow to the after end of machinery spaces, was corrugated, the damage being more severe on the port side. Over this area, internal structure was generally buckled and distorted. Several compartments leaked slightly through strained laps and butts of hull plating. Shock caused the failure of the propulsion exciter in the forward engine room (the propelling machinery was diesel electric), damaged the reduction gear lubricating oil pump in the after engine room and, to a varying degree, other auxiliary machinery. Both main engines were temporarily immobilised; five out of six plummer blocks supporting the starboard shaft were fractured. The steering gear in the wheelhouse was shattered. Shock effects also damaged W/T, A/S and S.A. equipment, gyro and other compasses and radar equipment. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised by the failure of the main engines but power was later restored to both engine rooms and a reduced speed of 6 knots maintained. Steering had to be controlled from the after position. Radar, W/T, A/S and S.A. equipment and the gyro compass were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VESTAL 10th Aug., 1944	One Non-Contact Mine probably acoustic type G.G. Charge 1600 lbs.	4 months including refit	VESTAL was minesweeping off the Normandy beaches, at 7 knots, when a mine exploded about 20 yards ahead fine on the port bow. Hull structure was slightly corrugated from the bow to abreast the bridge, with minor damage to internal structure. Slow flooding into the forward ballast tank and A/S compartment through strained laps and butts of hull plating, was kept under control. The port main engine was temporarily out of action due to a fractured corrosion piece in the circulating water system to the forced lubricating cooler. Damage to gearing in the bridge indicator at first prevented steering from the wheelhouse. Shock damage to the 4 inch gun rendered training and elevating stiff. The asdic dome was fractured and the gyro compass wrecked. Shock caused serious damage to W/T, A/S, radar, S.A. and E/S equipment. Fighting Efficiency - Seriously impaired. The 4-inch gun, S.A, E/S and A/S gear, radar and gyro compass were out of action.
LOYALTY 22nd Aug., 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	LOYALTY was minesweeping in the English Channel, at 16 knots, when an explosion occurred off the starboard side aft. The quarter deck was blown bodily upwards. The ship immediately developed a rapidly increasing list to starboard and settled by the stern. When abandoned the engine room was not flooded but the emergency lighting there had failed. Ship capsized between 5 and 7 minutes after being hit but remained afloat, with only the forepart of the keel above water, for about another 15 minutes.
GLEANER 25th Aug., 1944	One Non-Contact Mine probably magnetic	1½ months including refit	GLEANER was minesweeping in the English Channel when she exploded a non-contact mine. It was reported that the ship sustained extensive damage, but no details are available. Fighting Efficiency - Impaired. The ship was immobilised with the main engine out of action.
PIQUE 20th Sept., 1944	One Non-Contact Mine	Nil	PIQUE was minesweeping off the French coast when a non-contact mine detonated in her vicinity. The starboard engine was temporarily put out of action. Fighting Efficiency - Not seriously impaired.

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SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MULGRAVE (H.M.C.S.) 8th Oct., 1944 D.N.C.N6/R332	One Ground Mine in 9 fathoms	Indeterminate (Ship placed in reserve)	MULGRAVE was operating in Seine Bay off the north coast of France at 14 knots when an explosion occurred off her starboard quarter. The damage to the outer bottom below the waterline extended from the stern to abreast the engine room and was almost symmetrical port and starboard. The plating was strained and corrugated between frames and many rivets were sheared. The internal structure over this area was distorted and strained. The upper deck throughout the length of the ship and the forecastle deck - particularly near the breakwater - was distorted in a series of waves. Flooding could not be controlled, due to loss of steam and electrical power, and all compartments abaft the engine room rapidly filled. The ship was abandoned and taken in tow, during which time slow flooding in the engine room reached a maximum of 5 ft. and the quarter deck became awash. The explosion stopped the main engines and jammed the rudder. No apparent damage was sustained by the main engines, but both shafts were distorted. The steering gear and some auxiliary machinery - including the circulator, distiller and condenser - were severely damaged. The engine room was evacuated due to steam escaping from damaged pipes and both boilers were shut down within 10 minutes. This deprived the ship of all steam and electrical power. The main breakers came off the board - probably due to shock - but electrical equipment in or forward of the engine room was not seriously damaged. Radar sets, A/S and E/S equipment, and all but one small W/T set, were damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised and abandoned in a sinking condition but was later taken in tow and reached port safely. Radar, A/S, E/S and all but one small W/T set were out of action. All guns could have been fought in local control.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LARNE 15th Oct., 1944	One Moored Contact Mine in 75 fathoms type G.R. Charge 90 lbs.	14 months	LARNE was minesweeping in the Aegean Sea, South of Greece, when a mine struck the ship on the starboard side under the forward boiler room. The resulting hole in the bottom plating measured 20 ft. by 10 ft. and the surrounding plating was torn and forced inboard. The longitudinal bulkhead separating the forward boiler room and the starboard wing oil tank was destroyed and other bulkheads and structure adjacent to the explosion were severely strained and distorted. Flooding occurred over a length of about 50 ft. in centre line and the starboard compartments, including the forward boiler room, starboard forward oil fuel tanks, low power and gyro compass rooms. Flooding which could have been controlled had power been available occurred in the forward magazine, cold and cool rooms, naval store and forward mess decks. As a result the ship listed 25 degrees to starboard. The forward boiler room was wrecked but the machinery was otherwise not seriously damaged. All steam power was immediately lost after the explosion due to the fracture of valve boxes in the forward boiler room. Flooding of junction boxes, cables, and the low power room, caused the failure of all lighting and power forward of the machinery spaces. Radar equipment was seriously damaged by shock which also temporarily rendered the W/T equipment unserviceable. Flash back from the forward boiler room and the explosion of the mine caused burns and casualties among personnel in the vicinity. Fighting Efficiency - Seriously impaired. The ship was immobilised due to the loss of all steam and electrical power and had to be beached.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CLINTON 15th Oct., 1944	One Moored Contact Mine in 40 fathoms type G.R. charge 90 lbs.	9½ months including refit	CLINTON was minesweeping in the Aegean Sea, South of Greece, at 6 knots, when a mine struck the ship on the starboard side just abaft the forward magazine. Holes measuring 10 ft. by 6 ft. and 5 ft. by 2½ ft. were blown in the lower deck and 11 ft. by 15 ft. in the bottom plating on the starboard side. The keel was split and set up a maximum of 18 inches over a length of 13 ft. Compartments forward of the forward boiler room and below the upper deck, were flooded, including the magazines, oil fuel tanks, low power room and forward mess decks i.e. a length of about 50 ft. As a result the ship trimmed by the bow with a 2 degree list to starboard. The forward boiler room filled with smoke and was shut down for about 4 minutes. Flooding in the low power room put the gyro compass out of action, and the main W/T set failed temporarily due to flooding of the fuse box. Type 271 radar became unserviceable owing to the flooding of the alternator and the aerial of type 277 radar was fractured. Fighting Efficiency - Seriously impaired. The ship was difficult to manoeuvre and speed was limited to 4 knots. The gyro compass was out of action and the main W/T set was temporarily unserviceable.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HYDRA 10th Nov., 1944	One Moored Contact Mine in 8 fathoms type G.R. Charge 90 lbs.	Indeterminate (Ship not repaired)	HYDRA was operating off Ostend at 8 knots when a mine struck the ship under the bottom at the fore end of the after boiler room on the starboard side. A hole 6 ft. diameter was blown in the bottom and surrounding plating from bilge keel to bilge keel was forced inboard over a length of 35 ft. The keel was set up a maximum of 18 inches. A deep buckle, in which the plating was split in many places, girthed the hull, upper and forecastle decks abreast the main damage, and the ship sagged considerably. The after boiler room flooded immediately and the forward boiler room within 5 minutes. Flooding also occurred in the four wing oil fuel tanks abreast the boiler rooms and, during the time the ship was temporarily abandoned, the engine room, diesel generator and gyro rooms slowly filled. As a result of this flooding the ship heeled 12 degrees to port. The after boiler room was wrecked but the machinery was otherwise not seriously damaged. All steam was lost, and lighting and power failed due to the flooding of the boiler room and diesel generator compartment. Outside the limits of flooding, which included the gyro compass room, electrical equipment was practically undamaged. Fighting Efficiency - Seriously impaired. The ship was immobilised by the loss of all steam and electrical power and was temporarily abandoned due to the critically weakened condition of her structure. For this reason it would not have been considered safe to have fired the main armament.
CLAYOQUOT (H.M.C.S.) 24th Dec., 1944	Torpedo fired from submarine	Sunk	CLAYOQUOT, while operating off the approaches to Halifax, Nova Scotia, was torpedoed and sunk. No further information is available.

MINESWEEPERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
REGULUS 12th Jan., 1945	One Moored Contact Mine in 30 fathoms	Sunk	REGULUS was minesweeping in the south channel of the approaches to Corfu Island when an explosion occurred under the stern, possibly in contact with the propellers. The full extent of structural damage to the after end could not be assessed but it was known that several splits occurred in the hull plating on or near the waterline. In the engine room, there were splits in the starboard side and at the after end under the port side; abaft the engine room there was another split on the port side of the stokers mess deck. The lower deck in the minesweeping store, and the upper deck above this and over the engine room, were buckled and split. It was thought that all compartments abaft the engine room were damaged to some degree and their watertight integrity so impaired that flooding generally occurred. The ship was immobilised as a result of the explosion and was taken in tow 15 minutes later. 23 minutes after being taken in tow all machinery spaces were evacuated. The after end of the quarter deck was submerged and there was a heavy list to starboard. The ship was abandoned 42 minutes after explosion, and 4 minutes later was sinking by the stern with the bows almost vertical. REGULUS disappeared - 54 minutes after being mined.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ANTARES 25th Jan., 1945	One Moored Contact Mine in 26 fathoms probably type G.R. charge 90 lbs.	5½ months	ANTARES was minesweeping in the Adriatic, off the coast of Italy, at 8 knots when a mine struck the ship on the starboard bow, about 20 ft. from the fore end. Holes were blown in the hull plating, one on the starboard side measuring 10 ft. by 11 ft. and another on the port side measuring 3 ft. by 6 ft. Damage to the internal structure and bulkheads extended over a length of 30 ft. The lower deck was severely split and buckled over a length of 22 ft. and the corresponding portion of the upper deck was split and set up about 6 inches. The fore end of the ship was open to the sea and flooded for about 40 ft. The main engines and boilers were undamaged but fractured pipes in the forward steam heating system caused some contamination of the feed water until the system was blanked off. The main breaker tripped after the explosion but was immediately replaced, with no adverse effect on the electrical installations. The gyro compass was damaged by shock. The radar aerial was fractured as also were the shackles and insulators of the main transmitting aerials. The A/S compartment and associated equipment was wrecked. Fighting Efficiency - Not seriously impaired. ANTARES continued minesweeping duties at a speed of 10½ knots. The forward 4 inch gun could have been fired but it was not considered advisable due to the possibility of disturbing the shoring of the damaged structure at the fore end. Radar, A/S equipment and the gyro compass were put out of action.
FROLIC 31st Jan., 1945	Ground Mines	12 days	FROLIC, while minesweeping off the East coast in the vicinity of Harwich, sustained multiple minor shock damage caused by the detonation of mines close to the ship. Fighting Efficiency - Not seriously impaired. The engine room defects were temporarily repaired by the ship's staff enabling FROLIC to return to base under her own power.

MINESWEEPERS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GUYSBOROUGH (H.M.C.S.) 7th March, 1945	Two Torpedoes fired from submarine	Sunk	GUYSBOROUGH, while operating in the Atlantic, north of Spain, was attacked and sunk by a submarine. The first torpedo struck the ship aft and 90 minutes later a second torpedo hit amidships. No further information is available.
ESQUIMALT (H.M.C.S.) 16th April,1945	Torpedo fired from submarine	Sunk	ESQUIMALT, while operating off the approaches to Halifax, Nova Scotia, was torpedoed and sunk. No further information is available.
PROMPT 9th May, 1945	One Acoustic Mine in 12 fathoms	Indeterminate (Ship placed in reserve)	PROMPT was operating in the English Channel at 11½ knots, when an explosion occurred abaft the engine room under the bottom. The hull plating was corrugated from the stern, to abreast the engine room on the port side, and to abreast the forward boiler room on the starboard side; laps and butts of plating in this area were strained and leaking. The most serious deformation occurred over a length of 50 ft. abaft the fore end of the engine room, where corrugations reached a maximum depth of 4½ inches. The keel was split for 2 ft. at the cut up; and two other splits 6 inches long occurred in plating abreast the plummer block compartments. Internal structure abaft the engine room was severely damaged, and bulkheads were split and leaking. Flooding occurred in all compartments abaft the engine room below the lower deck and slowly spread to all compartments above. The engine room was partially flooded through a fractured overboard discharge valve, but, when pumping facilities were later made available, flooding in the engine room and all lower deck compartments was controlled. The cooling machinery and asdic compartments forward were flooded through damaged fittings. The ship listed 7 degrees to starboard but this was corrected by the jettisoning of top weight. The engine room was evacuated and boilers shut down due to steam escaping from broken auxiliary pipes. The main engine bearers were severely buckled the shafts were put out of line and the propellers and 'A' brackets were damaged. Fractured oil fuel pipes caused fires in the forward boiler room and in the officers' galley but these were never out of control and were extinguished with foamite. Fighting Efficiency - Seriously impaired. The ship was immobilised due to extensive shock damage. No power was available until one hour after the explosion when temporary repairs had been made to the diesel generator.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARCTURUS 4th June, 1945	One Ground Mine in 10 fathoms	4 months including refit	ARCTURUS was minesweeping in the Gulf of Venice at 9 knots when a mine detonated off the port quarter about 40 ft. abaft the stern. The hull plating on the port side was slightly buckled below the waterline from the stern to abreast the engine room, and some rivets in it were strained and leaking. Abreast the gland compartment side frames were buckled and plating corrugated. Although there were no ruptures in the hull plating, the engine room flooded to a depth of 2 ft. through a fractured bilge injection pipe. This and minor flooding in the diesel generator room, gland space and forward boiler room, caused by fractured fresh water pipes was controlled. The engine room was temporarily evacuated due to steam escaping from a damaged main circulating pump and an auxiliary steam pipe. This necessitated stopping both engines and shutting down boilers with a consequent loss of all power. The latter was restored in about 1½ hours, and lighting made available when the diesel generator was started. The port engine was found to be stiff, probably due to a damaged 'A' bracket and the shaft being out of alignment. A small oil fuel fire in the after boiler room was extinguished by using sand. The gyro and magnetic compasses had permanent errors due to shock damage. Fighting Efficiency - Seriously impaired. The ship was immobilised for about 1½ hours. When steam power was again made available it was possible to use the starboard engine at slow speeds.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ARIES 2nd July, 1945	One Moored Contact Mine in 11½ fathoms type G.Y. charge 660 lbs.	7 months	ARIES was minesweeping in the North Adriatic at about 13 knots when an explosion occurred just abaft the stern. About 35 ft. of the stern was wrecked and blown upwards 4 ft. Forward of this to the after end of the engine room the structure below the waterline was damaged and non-watertight. A severe whipping buckle girthed the hull at the after end of the engine room. All compartments abaft the engine room and below the lower deck flooded quickly. Slow flooding, which was controlled, occurred in compartments above the lower deck. The after bulkhead of the engine room was damaged, and leaking, but flooding through it was controlled. Machinery and electrical equipment outside the limits of the damaged stern were not seriously damaged. The starboard 'A' bracket was broken and the shaft dropped; the port shaft was out of alignment. The rudder was distorted and jammed at 20 degrees to port. All depth charge equipment was wrecked or severely damaged. Fighting Efficiency - Severely impaired. The ship was immobilised due to damaged shafting, broken 'A' bracket, and jammed rudder. Main armament was undamaged and serviceable, but depth charge equipment was out of action.
SQUIRREL 24th July, 1945	(i) One Contact Mine in 35 fathoms (ii) Gunfire from own forces	Sunk	SQUIRREL was minesweeping with the East Indies Fleet at 13 knots when an explosion occurred under the ship forward of the boiler room. Within one minute the ship had settled by the bow until the forecastle deck was awash to abreast the breakwater and a starboard list of 5 to 10 degrees had developed. The forecastle deck was split and buckled athwartships abaft the 4 inch gun and all compartments forward of the boiler room were flooded. The steering wheel was torn away from the steering column and communications with the engine room failed. The type 271 radar lantern was shattered. The forward boiler room commenced to flood, and as the boilers were shut down and steam lost, all power failed. About 2½ hours after the explosion SQUIRREL was abandoned and, as she was gradually settling by the bow and developing a heavy list to starboard, it was decided to sink her by gunfire from own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VESTAL 26th July, 1945	(i) Hit by one Japanese Suicide Plane (Val or Sonia) (ii) Torpedo and Shell fire from own forces	Sunk	VESTAL, while minesweeping with the East Indies Fleet, was attacked by a suicide plane, which crashed on the port side between the funnel and foremast and penetrated the hull in the vicinity of the boiler rooms. The hull was severely damaged in the region of the hit, part of the upper deck being forced out and projecting over the starboard side. A serious oil fuel fire started which soon got out of control. Immediately after the hit all power failed and the firemain was out of action. The only fire fighting equipment available was portable extinguishers which were unable to cope with a fire of such magnitude. VESTAL was heavily on fire and it was decided to abandon ship and sink her with a torpedo and shell fire from our own forces.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PELICAN 22nd April,1940 D.N.C.4B/R15	(i) One Direct Hit 250 lbs. delay action fuzed Bomb (ii) Two Near Miss 250 lbs. direct action fuzed Bombs	7 months	PELICAN was attacked by enemy aircraft whilst proceeding off the Norwegian coast. The direct hit burst on impact with the quarter deck and exploded a number of depth charges stowed in the rails. As a result of the explosion the whole of the ship abaft 'X' mounting was destroyed. The near miss bombs caused severe splinter damage over a large area. PELICAN was flooded from the plummer block compartments aft. Fighting Efficiency - Severely impaired. The vessel was immobilised and unseaworthy in rough weather. Half the ships armament was out of action.
AUCKLAND 24th April,1940	One Near Miss size unknown direct action fuzed Bomb	Nil	AUCKLAND sustained minor splinter damage from a near miss bomb. Small holes were pierced in the hull plating above the waterline aft. Fighting Efficiency - Unimpaired.
BLACK SWAN 28th April,1940 D.N.C.4B/R17	One Direct Hit 250 lbs. piercing type delay action fuzed Bomb	5 weeks	BLACK SWAN, whilst in Mi Fjord on the Norwegian coast, was subjected to persistent enemy bombing attacks. Throughout the attacks the ship was steaming at 19 knots. A bomb pierced the upper deck on the starboard side just forward of the after 4 inch twin mounting, and passed through the lower deck in the ward room, through the outer bottom and exploded some distance beneath the ship. Minor structural damage was sustained in the path of the bomb. Flooding occurred in No.3 4 inch magazine and the starboard fresh water tank. Fighting Efficiency - Impaired. Speed was reduced and the main W/T aerials were shot away.
FLEETWOOD 29th April,1940	Near Miss size and type unknown Bomb	Nil	FLEETWOOD, whilst operating off the Norwegian coast, was attacked by aircraft which dropped 28 bombs one of which near missed the ship. Only minor damage was sustained. Fighting Efficiency - Unimpaired.

SLOOPS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BITTERN 30th April,1940	(i) One Direct Hit 500 lbs. direct action fuzed Bomb (ii) Torpedo fired by own forces	Sunk	BITTERN was attacked by enemy aircraft whilst lying off Namsos. The bomb struck the quarter deck and a number of $8\frac{1}{4}$ lbs. T.N.T. charges (stowed aft) exploded. The ship was destroyed aft of 101 bulkhead. A severe fire started in the after lobby and the office flat and spread to the small arms magazine. BITTERN was abandoned and sunk by a torpedo fired by own forces.
BIDEFORD 29th May, 1940 D.N.C.4B/R24	Two Direct Hit 250 lbs. delay action fuzed Bombs	$10\frac{1}{2}$ months	BIDEFORD, during the Evacuation of Dunkirk, sustained damage from bomb hits. One bomb struck and burst at the extreme after end of the ship and another struck the fore end of the quarter deck and exploded between the upper and lower decks. Some depth charges on the quarter deck detonated and the whole after end of the ship disintegrated. A small fire broke out in the cabin flat, but it was soon controlled. The main engines were undamaged but as both shafts were bent the ship was immobilised. Fighting Efficiency - Severely impaired. BIDEFORD was immobilised and half of her armament out of action. W/T out of action due to damage to aerials. M/S gear destroyed.
FOXGLOVE 9th July, 1940 D.N.C.4B/R27	Three Direct Hit One 110 lbs. and one 500 lbs. direct action fuzed and the other 110 lbs. delay action fuzed Bombs	Not repaired	FOXGLOVE was bombed by enemy aircraft whilst approaching Portsmouth harbour on completion of convoy duty. The first bomb (110 lbs.) burst on impact with the boat deck, holes 3 ft. in diameter were blown in the boat deck and 2 ft. by 2 ft. 3 ins. in the upper deck. Splinters damaged the dynamo in the engine room. The second bomb (500 lbs.) struck and exploded on the boat deck just forward of the after bulkhead of the galley, it demolished a portion of the boat deck across the full width of the ship. Splinter damage was widespread. The third bomb (110 lbs.) penetrated the boat and upper decks passed through the starboard bunker and burst on contact with the wing bulkhead to No.2 Boiler room. No.2 Boiler room flooded immediately and No.1 Boiler room flooded slowly. The ship was immobilised. Fighting Efficiency - Severely impaired. FOXGLOVE was considered a total loss and was not repaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PENZANCE 24th Aug., 1940	Torpedo fired from submarine	Sunk	PENZANCE was attacked and sunk by a submarine torpedo while operating in the North Atlantic. No further information available.
STORK 8th Sept., 1940 D.N.C.4B/R41	One Contact Torpedo dropped by aircraft in 19 fathoms	8 months	STORK was hit by a torpedo dropped by German aircraft whilst she was lying at anchor in Methil Roads, Firth of Forth. The torpedo exploded on contact with the starboard side about 5 ft. below the waterline near the rudder head. The forward bulkhead of the steering compartment and hull structure abaft was wrecked and the small arms magazine and all compartments aft flooded immediately. A deep buckle girthed the ship at the after end of the superstructure. The rudder was missing and both shaft brackets fractured. Fighting Efficiency - Severely impaired. STORK was immobilised due to the fractured shaft brackets and the loss of the rudder, but the dynamoes were not damaged and there were no electrical failures. All gunnery armament, ammunition and supply remained intact. The W/T was out of action temporarily due to the main yard being shattered but a jury aerial was quickly rigged.
DUNDEE 14th-15th Sept., 1940	One Contact Torpedo fired from submarine	Sunk	DUNDEE was operating in the North Atlantic when an explosion occurred at the after end followed by two more (due to depth charges thrown overboard by the 1st explosion). Vessel was destroyed abaft 102 bulkhead and was abandoned. The ship was later boarded and attempts made to take her in tow. DUNDEE sank about 14½ hours after the first explosion. REMARKS This incident emphasised the need for maintaining steam so that all available pumping power can be used as and when required.

SLOOPS - 1940/41

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLACK SWAN 1st Nov., 1940 D.N.C.4B/R36	One Non-Contact Acoustic Mine in 13 fathoms	6½ months	BLACK SWAN was proceeding at 16 knots near Inchkeith Light when an explosion occurred off the port quarter. The outer bottom plating was dished between frames from the after end of the after boiler room to the stern of the ship. Minor controlled flooding occurred at the after end. The main machinery was out of action due to fractured castings. Fighting Efficiency - Seriously impaired. BLACK SWAN was immobilised due to main machinery damage.
EGRET 7th Nov., 1940	One Near Miss size unknown direct action fuzed Bomb	1 week	EGRET was escorting a convoy at 8 knots in the Thames Estuary when a near miss bomb on the starboard bow caused minor structural damage. The starboard side above water was perforated by splinters and two oil fuel tanks were leaking. A minor fire was caused by a splinter in a 4 inch R.U. locker. Fighting Efficiency - Impaired. Speed was reduced temporarily due to loss of oil fuel.
LOWESTOFT 5th Jan., 1941 D.N.C.4B/R57	One Non-Contact Acoustic Mine in 13 fathoms	8½ months	LOWESTOFT was proceeding at 10 knots in the Thames Estuary when an explosion occurred under her bottom port side abreast the after end of the engine room. The side plating from the fore end of engine room to the after cut up, port, and from the after end of the after 4 inch magazine to the fore end of the spirit room, starboard, was dished between the frames. The keel was set up about 4 inches in the after ballast tank. The hold compartments abaft the engine were flooded, but flooding was controlled in the plummer block space and gland compartments. Five sliding feet of the H.P. turbines were fractured and minor damage sustained by auxiliary machinery. Fighting Efficiency - Severely impaired. Vessel was immobilised owing to machinery damage. The after 4 inch gun, rangefinder and depth charge chutes were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PELICAN 19th Feb., 1941 D.N.C.4B/R58	Two Non-Contact Acoustic Mines one in 10 fathoms one in 8 fathoms	8½ months	PELICAN was proceeding at 12 knots about 12½ miles off Harwich when an explosion occurred 100 to 150 ft. abreast Y gun, port. Minor structural damage occurred on the port side abreast the engine room and also abreast the gland compartment, this caused minor flooding. No.2 turbo generator, port side, was put out of action. The port intermediate shaft was slightly out of line, but was insufficient to prevent PELICAN from continuing on her course. About three quarters of an hour after the first explosion a second explosion occurred in the vicinity of the after engine room. The hull plating was corrugated from the keel to the waterline, between the centre of the engine room and the stern. The internal structure in the vicinity was distorted and the vertical arm of the starboard 'A' bracket was fractured. Serious damage was sustained by the main and auxiliary machinery castings. Slow flooding occurred in all compartments abaft the engine room. Fighting Efficiency - Seriously impaired. PELICAN was immobilised due to machinery damage. 'X' and 'Y' guns were out of action due to shock and 'A' and 'B' guns could only be supplied by hand. The rangefinder was also out of action. The steering gear was jammed.
LUPIN 10th-11th March, 1941 D.N.C.4B/R66	One Near Miss size and type unknown Bomb	Nil	LUPIN, during an air raid on Portsmouth Dockyard, was damaged by a near miss bomb which burst 30 yds. from the ship. A large number of splinters pierced the hull plating, superstructure, funnels and fittings over an area extending from the breakwater to the mainmast. Fighting Efficiency - Not seriously impaired. Damage to the ship was mainly superficial.

SLOOPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ERNE 30th April, 1941 D.N.C.4B/R75	One Direct Hit 100 kgm delay action fuzed Bomb Two Near Miss 100 kgm delay action fuzed Bombs	12 months including refit	ERNE was proceeding at 7 knots in the North Sea when attacked by enemy aircraft. Bombs were released at about 1000 yards range from a height of 50 ft. and skimmed across the water in short "jumps". One bomb burst close to the port quarter and the hull plating in the vicinity was dished inboard and fractured. Another bomb jumped over the ship just forward of the funnel and exploded below water causing minor damage to the hull plating. The third bomb struck 'B' gun blast screen and passed overboard without exploding. The after end of ship dropped 15 ins. and was set to port 15 ins. 'X' gun support was displaced and the feet of L.P. and H.P. turbines fractured. All main and auxiliary machinery castings were fractured. Flooding occurred in the vicinity of the explosion. Fighting Efficiency - Seriously impaired. ERNE was immobilised due to machinery damage. Guns able to fire in local control only. D/G was out of action.
GRIMSBY 25th May, 1941	Two Direct Hit size unknown delay action fuzed Bombs One Near Miss 100 kgm delay action fuzed Bomb	Sunk	GRIMSBY was attacked by enemy aircraft whilst escorting a convoy in the Mediterranean about 30 miles from Tobruk. In the first attack a near miss bomb, 20 ft. to starboard, caused minor structural damage and put the forward pusher hoist out of action. The A/S was temporarily out of action. The second attack occurred 3 hours 22 minutes later, a direct hit passed through the engine room and another through the after end of the ward room. Both bombs burst on or just below the outer bottom. Extensive flooding and structural damage was sustained from the engine room to the mining flat. Slow flooding occurred at the after end. GRIMSBY was immobilised and listed to port. 'B' gun jumped from the roller path. 53 minutes after the second attack the ship was abandoned with a 30 degree list to port and the quarter deck awash. Enemy aircraft were in the vicinity and heavy explosions were heard about $1\frac{1}{2}$ hours after the ship was abandoned and it was considered that the wreck was again bombed.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
AUCKLAND 24th June, 1941	Four Direct Hit several Near Miss size and type unknown Bombs	Sunk	AUCKLAND, while on passage from Alexandria to Tobruk, was damaged by several near misses and later was hit by a heavy bomb which wrecked the stern above the waterline. The ship continued to steam at 10 knots with the rudder jammed at 30 degrees to port. Three more bombs struck the ship, one through the sick bay, another through the bridge exploding as it passed out through the ship's side, and a third hit amidships. AUCKLAND was on fire and abandoned with a heavy list to port, a heavy explosion then occurred, probably a delay action fuzed bomb, which broke her back. AUCKLAND capsized and sank about 40 minutes after the first bomb hit.
FLAMINGO 30th June, 1941	(i) Two Near Miss 500 kgm delay action fuzed Bombs. (ii) Six Near Miss 250 kgm direct action fuzed Bombs. (iii) Number unknown Near Miss 50 kgm direct action fuzed Bombs.	Not known	FLAMINGO was subjected to three attacks whilst proceeding off the Libyan coast. Many near misses caused minor damage, the outer bottom plating was strained and leaking causing minor flooding. The feet of the starboard L.P. turbine and keeps of the port L.P. turbine were fractured. There was a partial loss of vacuum in the port L.P. turbine. The after 20 ton pump was out of action. Fighting Efficiency - Slightly impaired. The speed was reduced due to damaged machinery castings.
BLACK SWAN 24th Aug., 1941	Near Miss size and type unknown Bombs Three Direct Hit Bombs which did not explode	3 weeks	BLACK SWAN, whilst escorting a convoy, was attacked by an enemy aircraft which dropped six bombs. Minor damage was caused by the near misses and superficial damage sustained from splinters. The steam and exhaust pipes of the steering engine and governor gear was fractured. Minor damage was sustained by the auxiliaries. Fighting Efficiency - Seriously impaired. The steering gear was out of action and BLACK SWAN was steered by the main engines.
PARRAMATTA (H.M.A.S.) 27th Nov., 1941	Torpedo fired from submarine	Sunk	PARRAMATTA was sunk whilst operating 20 miles east of Tobruk. No further information available.

SLOOPS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FLAMINGO 7th Dec., 1941	Two Direct Hit one 1000 kgm and one 100 kgm Bombs Ten Near Miss delay action fuzed Bombs	22 months	FLAMINGO was attacked whilst proceeding off the Libyan coast at 14 knots. Extensive structural damage was caused as a result of direct hits and near misses. The outer and inner bottoms were holed and distorted in way of the engine room. Bottom castings of all turbines were cracked. Extensive damage was caused to the auxiliary machinery. Fighting Efficiency - Seriously impaired. Vessel was immobilised and out of action.
PELICAN 8th Dec., 1941	Aircraft Machine gun	Nil	PELICAN was operating off the east coast of Scotland at 14 knots when she sustained superficial damage from machine gun bullets. The echo sounding gear recorder was punctured. Fighting Efficiency - Not impaired.
SWAN (H.M.A.S.) 19th Feb., 1942	Near Miss Bombs	2 months approx.	SWAN, whilst at Port Darwin, during an air raid, sustained severe damage to structure and A/S gear. Fighting Efficiency - Seriously impaired.
YARRA (H.M.A.S.) 4th March, 1942	Shell	Sunk	YARRA was in action with Japanese cruisers and destroyers South West of Java. Ship was sunk as a result of many direct hits which started a fierce fire and immobilised the ship.
INDUS (H.M.I.S.) 6th April, 1942	Bomb	Sunk	INDUS, whilst operating in the Bay of Bengal, was bombed and sunk. No further information available.
CORNWALLIS 10th Sept.,1942	Torpedoes fired from submarine	1 month	CORNWALLIS was at Barbadoes, West Indies, when four explosions occurred in the anti-torpedo net. Ship was not seriously damaged. Fighting Efficiency - Not seriously impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IBIS 10th Nov., 1942	One Contact Torpedo dropped by aircraft	Sunk	IBIS, whilst operating 10 miles north of Algiers, was struck on the port side oil fuel tanks just forward of the forward boiler room. The ship's side was opened up from within 10 ft. of the upper deck port side and extending under the bottom. The forward oil fuel tanks port side and both boiler rooms were immediately flooded. A serious fire started in the port passage but was extinguished by escaping steam from No.2 boiler. The engine room and starboard dynamo room were flooded with burning oil through the forward bulkhead of the engine room. The main steam pipes in the engine room were fractured. IBIS took an immediate list of 10 to 15 degrees to starboard and was abandoned. Two minutes later th list increased to 45 degrees and one minute later the vessel rolled over to starboard and for a time remained afloat bottom upwards.
STORK 12th Nov., 1942 D.N.C.4B/R206	One Contact Torpedo fired from submarine	8 months	STORK, while carrying out an anti submarine patrol at 15 knots off Algiers, was struck by a torpedo. The torpedo struck the starboard side in the vicinity of the fore foot about 7 ft. below the waterline. The fore end structure for 32 ft. below the lower deck and for 14 ft. below the upper deck was blown away. The remaining structure forward of the asdic compartment was severely buckled and distorted. Minor damage extended to abreast 'A' gun. The ship was buckled around the girth, just abaft 'B' gun and at the after end of the bridge. The steering gear was temporarily jammed owing to bent shafting. The ship was open to the sea forward of the asdic compartment. Lighting circuits at the fore end were severely damaged and the gyro compass was out of action due to shock. 'A' mounting could not be trained due to distortion of structure. Fighting Efficiency - Seriously impaired. Speed was reduced to 6 knots and steering gear was temporarily out of action. 'A' and 'B' mountings out of action due to danger of aggravating structural damage. The gyro compass out of action.

SLOOPS - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ENCHANTRESS 13th Dec., 1942	Rammed submarine	5 months including refit	ENCHANTRESS was on convoy duty in the Mediterranean when an enemy submarine was sighted travelling at 10 knots. ENCHANTRESS increased speed to 15 knots and rammed the submarine fine on the starboard side between the conning tower and the stern. The fore foot was torn away and structure in the way of fore peak from keel to lower deck was forced to starboard and bent aft. Minor damage was sustained between the lower and upper decks and in way of the oscillator compartment. The fore peak and oscillator compartment flooded immediately. Fighting Efficiency - Impaired. Speed was reduced to 10 knots in fair weather. The S/A gear was out of action.
LONDONDERRY 3rd Feb., 1943	One Non-Contact Torpedo fired from submarine	8½ months	LONDONDERRY was escorting a convoy in the North Atlantic when an enemy submarine was detected. During a depth charge attack on the suspected submarine, a heavy explosion occurred aft. No serious structural damage was visible except for buckling of the hull plating around the ship's girth abreast the after end of the superstructure. The steering compartment was flooded and the gear wrecked. The main engines had to be stopped due to overheating of the shaft bearings and when the ship was later in tow the starboard shaft was found to be fractured. Movement of the stern suggested that the ship's back was broken and whilst in tow the stern structure abaft the superstructure broke away and floated on an even keel. Fighting Efficiency - Seriously impaired. The ship was immobilised due to damaged shafts and the loss of the stern structure.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STARLING 24th June, 1943 D.N.C.4B/R266	Rammed submarine	6 weeks	STARLING was on anti-submarine patrol in the Bay of Biscay when an enemy submarine was attacked by depth charges and blown to the surface where it was proceeding slowly and apparently under control. STARLING rammed the submarine at 10 knots when it commenced to dive. The submarine was awash when it was rammed and was struck abreast the conning tower. STARLING's bow structure for 9 ft. above the keel and for 4 ft. aft, was bent to starboard. Surrounding plating was corrugated between the frames. The hull plating port side abreast 'B' magazine and the flour store was holed for 21 ft. by 1 ft. over the garboard and 'A' strake. 'A' and 'B' magazines, flour and canteen stores flooded immediately. The Asdic dome was torn away and the S/A oscillator shattered. Fighting Efficiency - Seriously impaired. The maximum speed was reduced to 14 knots due to damage and flooding. The ammunition to the forward guns was lost. The asdic and S/A gear was out of action.
BIDEFORD 25th Aug., 1943	Near Miss Radio controlled glider Bombs Type H.S.293	1 month	BIDEFORD was proceeding at 8 knots off Cape Ortegal when enemy aircraft attacked her with radio controlled glider bombs. Splinter damage was sustained to the port side forward of the bridge, above and below the waterline. The cable locker, paint room, upper and lower central stores, asdic compartment and forward messdeck were holed by splinters. Flooding occurred through splinter holes into the cable locker, asdic compartment and lower central store. The electric leads, degaussing gear and foremast were damaged by splinters. Fighting Efficiency - Not seriously impaired. Asdic and degaussing gear was out of action.

SLOOPS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EGRET 27th Aug., 1943	One Direct Hit radio controlled glider Bomb Type H.S.293	Sunk	EGRET, whilst proceeding off the west coast of Spain, was hit amidships on the starboard side in the vicinity of the forecastle deck. The bomb exploded inside the ship probably near the port side. EGRET heeled over to port, capsized and was floating bottom upwards within one minute. The ship subsequently sank about 1¼ hours later. In view of the extensive damage which caused the ship to capsize in so short a time and from photographs taken of the explosion it is considered that a magazine explosion probably occurred.
CHANTICLEER 18th Nov., 1943	Probably an Acoustic Homing Torpedo fired from submarine	Indeterminate (not repaired converted to Base Ship)	CHANTICLEER was escorting a convoy in the North Atlantic, at 15 knots, when an explosion occurred at the after end. The stern was blown off with serious structural damage as far forward as the engine room. The forecastle and main decks were buckled near the after boiler room. The rudder was blown on to the upper deck. The portion of the ship abaft the engine room was open to the sea and was abandoned. Flooding forward of the engine room through whipping buckles, also in the stabiliser compartment through strained glands, was kept under control. The ship listed to port. 'X' magazine was reported to be on fire as much smoke was emerging from the shell hoist. Water was sprayed into the magazine with an oil spray nozzle and the smoke ceased. Both main engines and the steering gear were out of action. Fighting Efficiency - Seriously impaired. The ship was immobilised and towed to the Azores.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WOODPECKER 19th-27th Feb., 1944	(i) Probably an Acoustic Homing Torpedo fired from submarine (ii) Shell fired by own forces	Sunk	WOODPECKER, at 2216/19 while operating in the North Atlantic, at a speed of 17 knots, was struck by a torpedo in the vicinity of the after end. About 60 ft. of the stern, abaft the after magazine was blown away. The ship was immobilised with both shafts out of action. The forecastle and upper decks were badly buckled and split abaft the forward boiler room, a whipping buckle abreast the funnel extended down the ship's port side and another abreast the after end of the engine room extended down both sides. Each buckle reached to below the waterline. Flooding extended forward of the main damage through splits in the hull plating in the vicinity of whipping buckles. The air space abaft the engine room, after magazine and stabiliser compartment flooded slowly. Oil fuel tanks aft were contaminated. All possible topweight was jettisoned. At 1030/20 the ship was taken in tow. 0845/25. All flooding forward of the main damage, through whipping buckles, etc., was under control. 1830/26. Tow continued but ship abandoned due to adverse weather report. 0721/27. Ship capsized in very bad weather. 0815/27. Sinking was expedited by shell fire from own forces.
KITE 21st Aug., 1944	Torpedo fired from submarine	Sunk	KITE was lost while operating in the Greenland Sea. No further information available.
NARBADA (H.M.I.S.) 13th Jan., 1945	One Near Miss Bomb	Nil	NARBADA, while operating with an assault force off the coast of Burma, near the Akyab Area, was attacked by eight Japanese aircraft. Minor damaged was sustained from a near miss bomb. Fighting Efficiency - Not impaired.

SLOOPS - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LARK 7th Feb., 1945	One Torpedo probably Acoustic Homing type fired from submarine	Indeterminate (Ship not repaired)	LARK was carrying out an anti-submarine sweep outside Kola Inlet, North Russia, at 10 knots, when a heavy explosion occurred and her stern was blown off. About 55 ft. of stern structure was missing and a further 30 ft. to the after end of the 4 inch magazine was wrecked or seriously damaged. Buckles and splits occurred in the decks and hull plating abreast the after oil fuel tanks and the two boiler rooms. No important flooding occurred forward of the wrecked stern, but some water entered the 4 inch magazine through flooded stern tubes and damaged shaft glands. The port and starboard shafts and propellers were missing but otherwise all main and auxiliary machinery was serviceable. The after oerlikons were blown away and 'X' 4 inch gun was damaged and unusable. The deck surrounding this gun was badly distorted. All depth charge equipment was missing or wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised, by loss of shafts, propellers and steering gear and had to be taken in tow. The after 4 inch gun, oerlikons and all depth charge equipment were out of action.
LAPWING 20th March, 1945	One Contact Torpedo fired from submarine	Sunk	LAPWING was escorting a convoy off Kola Inlet, North Russia, when a torpedo struck her on the starboard side abreast the funnel. All lights were extinguished and the ship heeled to port. Abreast the explosion there was a large hole in the upper deck and surrounding structure was covered in oil. Survivors' evidence indicated that the hull had been practically blown in two. 15 minutes after the attack the ship broke in two and at 3 minutes later the two ends began to settle. LAPWING was abandoned 20 minutes after the attack with the bow and stern high out of the water, both of which sank shortly afterwards.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KINGFISHER 1st June, 1940	Size and type unknown Bomb	Nil	KINGFISHER was damaged by enemy bombing during the evacuation of Dunkirk. Ship was unseaworthy in rough weather. No further details available. Fighting Efficiency - Impaired.
PATHAN (H.M.I.S.) 23rd-24th June, 1940	One Contact Mine	Sunk	PATHAN was operating off Bombay when a heavy explosion aft wrecked the stern structure and forced the upper deck over the after gun and on to the boat deck. The ship was immobilised with a heavy list to port and considerable trim by the stern. Efforts to use the main engines proved unsuccessful. When last inspected the engine room was slowly flooding with 6 ft. of water already present. The ship was abandoned and eventually sank on the 24th June.
GUILLEMOT 30th July, 1940	One Near Miss 250 lbs. delay action fuzed Bomb	Nil	GUILLEMOT, while operating off East Anglia, was attacked by enemy aircraft. No structural damage was sustained from a near miss bomb although a large column of water was thrown up by the explosion. Some water passed down the funnel and put out the boiler sprayers. Fighting Efficiency - Temporarily impaired. GUILLEMOT was temporarily immobilised due to loss of steam.
KINGFISHER 14th Aug., 1940	Near Miss size unknown direct action fuzed Bombs	Nil	KINGFISHER sustained splinter holes in the ship's side and superstructure from near miss bombs. The port propeller shaft was bent and the port engine out of action. The D.G. coils were cut by splinters. Fighting Efficiency - Impaired. The maximum speed was reduced and the D.G. was out of action.

CORVETTES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MALLARD 30th Sept., 1940	One Direct Hit two Near Miss 50 kgm delay action fuzed Bombs	9 months	MALLARD was attacked by a low flying enemy aircraft which dropped five bombs. The attack occurred whilst the ship was in the vicinity of the Kentish Knock Lightship and proceeding to Harwich at 17 knots. A near miss on the port quarter and another on the starboard side caused minor structural damage. The direct hit bomb struck the engine room and exploded about 10 ft. beneath the keel, the ship's bottom was blown inwards in the vicinity of the explosion and a hole was blown in the hull plating 5 to 6 ft. in diameter. The engine room was wrecked and the engine and boiler rooms flooded immediately. Fighting Efficiency - Seriously impaired. MALLARD was immobilised, W/T out of action and guns could only be fired in local control.
ANEMONE 28th Oct., 1940	Near Miss size and type unknown Bomb	Nil	ANEMONE was damaged while lying in Gladstone dock during an air raid on Liverpool. A near miss bomb caused damaged to the oil fuel suction line. Oil fuel leaked into the starboard bilge (20 to 30 tons). Fighting Efficiency - Impaired.
PINTAIL 1st Nov., 1940 D.N.C.4B/R38	Two Direct Hit size unknown One delay action and One direct action fuzed Bombs	4½ months	PINTAIL, whilst escorting a convoy in the North Sea at 9 knots, was attacked by enemy aircraft which dropped 6 bombs during shallow dives, two of which scored direct hits. 1st Bomb exploded in contact with the upper deck over the forward boiler room port side. A hole 5 ft. 6 ins. in diameter was blown in the deck plating. Splinters pierced the outer bottom and caused the forward boiler room to flood. No.1 boiler room was damaged by splinters and blast. 2nd Bomb struck the bridge and burst 3 ft. from the starboard side. The bridge structure was severely damaged and a hole 3 ft. by 5 ft. was blown in the bridge deck. Fighting Efficiency - Seriously impaired. PINTAIL was only able to steam at reduced speed. W/T and A/S was out of action. The 4 inch gun was out of action due to casualties.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RHODODENDRON 17th Jan., 1941	One Non-Contact Acoustic Mine	3 months	RHODODENDRON sustained minor structural damage from a mine whilst in the vicinity of Q.1 Buoy, Liverpool Harbour. The main engines and steering gear were put out of action. Fighting Efficiency - Seriously impaired. RHODODENDRON was immobilised and taken in tow.
HONEYSUCKLE 19th Jan., 1941	One Non-Contact Acoustic Mine	3 months	HONEYSUCKLE was near the Bar Light Vessel. When she sustained minor structural damage from a non-contact mine. One boiler was temporarily out of action. Fighting Efficiency - Slightly impaired. HONEYSUCKLE entered harbour under her own power.
SHELLDRAKE 11th March,1941	Blast from a Contact Torpedo	Nil	SHELLDRAKE, whilst escorting a convoy, sustained minor damage to the port propeller and shafting from the explosion of a torpedo which hit DOLTERILL close by. Fighting Efficiency - Not impaired.
ASTER 4th May, 1941	Near Miss size and type unknown Bomb	Nil	ASTER was damaged during an air raid on Belfast. No serious damage was sustained by the ship's structure but boats and lifesaving equipment were damaged by blast. Fighting Efficiency - Not impaired.
GLOXINA 16th May, 1941	One Non-Contact Acoustic Mine	Nil	GLOXINA sustained minor damage from an acoustic mine whilst sweeping at Malta. Fighting Efficiency - Not impaired.
SALVIA 18th May, 1941	Size and type unknown Bomb	Not known	SALVIA was attacked in Suda Bay and minor structural damage was sustained. The engine and boiler room were temporarily out of action. Fighting Efficiency - Seriously impaired. SALVIA was temporarily immobilised but returned to Alexandria under her own power.

CORVETTES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PINTAIL 10th June, 1941	One Contact Mine 12 fathoms	Sunk	PINTAIL was mined and sunk off the Humber. No further details available.
HYACINTH 5th July, 1941	Three Near Miss size and type unknown Bombs	9 days	HYACINTH was damaged in Famagusta Harbour. Minor structural damage was sustained under No.2 Boiler room. Fighting Efficiency - Impaired. Minesweeping gear was out of action. HYACINTH was beached but was later refloated by PEONY.
PICOTEE 12th Aug., 1941	Probably Torpedo fired from submarine	Lost	PICOTEE was probably torpedoed by a submarine off Iceland. No further details available.
ZINNIA 23rd Aug., 1941	One Torpedo Contact fired from submarine	Sunk	ZINNIA was escorting a convoy off the coast of Portugal when an explosion occurred on her port side abreast the funnel. The asdic house collapsed and the ship disintegrated in the region of the hit. ZINNIA heeled to starboard and capsized in 5 seconds. REMARKS The ship's reported contained the following proposals:- 1. Small compressed air cylinders should be supplied to inflate lifebelts. 2. Lights, similar to the Board of Trade pattern for indicating position in water, should be supplied. 3. Whistles should be supplied in addition to lifebelt lights. 4. A preparation to remove oil fuel from survivors to be supplied to H.M. Ships.
LEVIS (H.M.C.S.) 19th Sept., 1941	Torpedo fired from submarine	Sunk	LEVIS, whilst operating in the North Atlantic, was seriously damaged by a torpedo, she was taken in tow but eventually sank. No further information available.
FLEUR DE LYS 14th Oct., 1941	Torpedo fired from submarine	Sunk	FLEUR DE LYS was lost whilst operating west of Gibraltar. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GLADIOLUS 16th Oct., 1941	Probably Torpedo fired from submarine	Sunk	GLADIOLUS was lost whilst operating in the North Atlantic. No further information available.
SALVIA 24th Dec., 1941	Torpedo fired from submarine	Sunk	SALVIA was lost whilst operating off Egypt. No further information available.
ARBUTUS 5th Feb., 1942	One Contact Torpedo fired from submarine	Sunk	ARBUTUS was searching for a U-Boat at 14 knots when a torpedo hit the starboard side abreast the forward bulkhead of the forward boiler room. The ship listed to starboard and sank by the bows about half an hour after being hit. REMARKS OF THE BOARD OF ENQUIRY:- 1. Service type inflatable lifebelt is of little use in oily water as compared with the merchant navy kapok lifebelt, the collar of which protects the head from oil fuel. 2. Hemp slings attached to lifebelts are invaluable in rescuing men who have been immersed in oil fuel.
SPIKENARD (H.M.C.S.) 11th Feb., 1942	One Contact Torpedo fired from submarine	Sunk	SPIKENARD was struck by a torpedo just forward of the bridge, in or near the 4 inch magazine. The ship was flooded forward of No.1 Boiler room immediately after the explosion. A serious fire developed in the bridge and W/T Office. The ship sank very quickly after being hit. REMARKS OF THE BOARD OF ENQUIRY:- 1. The hatch from the upper to lower mess decks should be made watertight in all corvettes. 2. Improvements in life saving apparatus and means of attracting attention to floating rafts etc. is necessary.

CORVETTES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
HOLLYHOCK 9th April, 1942	Two Direct Hit One Near Miss delay action fuzed Bombs	Sunk	HOLLYHOCK was attacked by enemy aircraft while on passage from Trincomalee to Colombo. Japanese dive bombers attacked and one bomb fell close alongside putting No.2 boiler out of action. 9 minutes later two direct hits were sustained, one, near the funnel, was thought to have exploded in or near the after magazine. HOLLYHOCK immediately blew up, disintegrated and sank within 45 seconds.
AURICULA 5th-6th May, 1942	One Contact Mine	Sunk	AURICULA, while minesweeping in the Approaches to Courier Bay, Madagascar, struck a mine and broke her back. The ship sank while at anchor about 8 hours later. No further information available.
PRIMULA 14th June, 1942	Near Miss Bombs	12 days	PRIMULA was damaged by near miss bombs whilst escorting a convoy to Malta. Fighting Efficiency - Impaired.
DIANTHUS 9th Aug., 1942	Rammed submarine	4 months	DIANTHUS sank a U-boat in the North Atlantic after ramming four times. The stem was badly buckled and turned to starboard and a large hole was torn in the starboard side plating abreast the forward mess decks. The fore end below the lower deck was flooded for 70 ft. including the magazines and asdic compartment. The fore ends of the bilge keels port and starboard were crumpled. Fighting Efficiency - Severely impaired. Speed was reduced to $6\frac{1}{2}$ knots.
CHARLOTTETOWN (H.M.C.S.) 10th Sept.,1942	Two Torpedoes fired from submarine	Sunk	CHARLOTTETOWN was struck by two torpedoes whilst at the mouth of the river St. Lawrence, Canada. The ship sank within four minutes of being hit. No further information available.
CROCUS 6th Oct., 1942	Rammed submarine	10 days	CROCUS, while on patrol off Freetown, Sierra Leone, sighted an enemy submarine and ten minutes later rammed it at $16\frac{1}{2}$ knots. The submarine remained under the bow for a short period and then broke away to port. CROCUS again rammed the submarine in the vicinity of the stern. The submarine passed down the starboard side and was last seen heavily listing. Fighting Efficiency - Unimpaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KITTIWAKE 13th Oct., 1942	One Near Miss Bomb	4 days	KITTIWAKE, during an air raid on Portsmouth was in a floating dock when a direct hit on the deck caused superficial damage to the vessel. Fighting Efficiency - Not impaired.
ARMIDALE (H.M.A.S.) 1st Dec., 1942	Two Torpedoes dropped by aircraft	Sunk	ARMIDALE was struck by two torpedoes and sunk when attacked by enemy aircraft. No further information available.
MARIGOLD 9th Dec., 1942	One Contact Torpedo dropped by aircraft	Sunk	MARIGOLD was escorting a convoy in the Mediterranean when a torpedo struck the ship in way of the asdic compartment. The structure in way of the forward mess decks was wrecked. The mast and radar hut collapsed across the bridge. The boilers collapsed inwards and considerable buckling occurred amidships. The forward 4 inch gun was blown overboard. MARIGOLD remained on an even keel and down by the bow for about 4 minutes. The ship suddenly lurched to port, heeled over at an angle of 45 degrees for about 5 minutes and finally sank by the bow.
SNAPDRAGON 19th Dec., 1942	Four Near Miss Bombs	Sunk	SNAPDRAGON, while escorting a convoy in the Mediterranean, was attacked by an enemy aircraft which dropped a stick of four bombs. One near miss dropped about 30 yards off the port quarter and two others fell very close along the port side. The after oil fuel tanks and structure in the vicinity of the wardroom were holed by splinters. A fourth near miss fell very close to the ship abreast the bridge and caused extensive damage to the structure in the vicinity. SNAPDRAGON immediately listed 15 degrees to port and slowly settled by the bows while still proceeding at 7 knots. The ship was abandoned and sank about 4 minutes after the attack.

CORVETTES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VILLE DE QUEBEC (H.M.C.S.) 13th Jan., 1943	Rammed submarine	8 days	VILLE DE QUEBEC rammed a submarine between the conning tower and forward gun after it had been blown to the surface by a depth charge attack. The stem bar and bow plating, port and starboard of VILLE DE QUEBEC was badly buckled over the garboard strake, 'A' strake and the bottom of 'B' strake for a distance of 15 ft. The lower edge of the asdic trunk was distorted. Fighting Efficiency - Not impaired.
SAMPHIRE 30th Jan., 1943	One possibly two Contact Torpedoes fired by submarine	Sunk	SAMPHIRE was escorting a convoy at 10 knots in the Mediterranean when a torpedo struck the starboard side at the after end of the engine room. A second explosion, thought to be another torpedo, occurred aft about one minute later. SAMPHIRE settled rapidly aft and sank by the stern about 2 minutes after the first explosion.
LOUISBURG (H.M.C.S.) 6th Feb., 1943	One Contact Torpedo dropped by aircraft	Sunk	LOUISBURG was escorting a convoy in the Mediterranean when a torpedo, dropped by an enemy aircraft, struck the port side abreast the after depth charge thrower. The ship immediately listed to port and sank about 3 to 4 minutes after the explosion.
ERICA 9th Feb., 1943	One Contact Mine	Sunk	ERICA, whilst escorting a convoy in the Mediterranean, struck a mine on the port side abreast the bridge. The ship was flooded from the bows to the forward boiler room bulkhead. An extensive fire started in the boiler room and the wardroom flat. ERICA settled by the bows and sank about a quarter of an hour after striking the mine. REMARKS It was not possible to have sealed off the fire in the boiler room because of the unauthorised substitution of the steel access hatch by a wooden one to simplify the blackout arrangements.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WEYBURN (H.M.C.S.) 22nd Feb., 1943	One possibly Non-contact Mine in 70 fathoms	Sunk	WEYBURN was escorting a convoy off Cape Spartel, Gibraltar, when a mine exploded amidships on the port side. A large hole was blown in the ship's side, the upper deck was buckled and the funnel split vertically. All bulkheads in the wardroom flat were blown down. The engine room flooded quickly with oil and water. WEYBURN sank about 20 minutes after the explosion. A few seconds after the ship had disappeared a very large explosion occurred underwater and WIVERN, which was standing by, was seriously damaged.
SUNFLOWER 5th-6th May, 1943	Rammed submarine	8 days	SUNFLOWER rammed an enemy submarine whilst escorting a convoy in the North Atlantic. The stem bar was bent to starboard 140 degrees for 6 ft. above the keel, the garboard and 'A' strakes in the vicinity were distorted and fractured between the frames. Fighting Efficiency - Not seriously impaired.
POLYANTHUS 20th Sept.,1943	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	POLYANTHUS, while escorting a convoy in the North Atlantic at 10 knots, was torpedoed right aft. POLYANTHUS was attacking a submarine and was under full starboard helm when the torpedo struck. There was a possibility that the ship blew up; only one survivor was rescued.
ABELIA 9th Jan., 1944	Underwater Explosion in 2500 fathoms	2 months	ABELIA, while escorting a convoy in the North Atlantic at 14 knots, detected submarines and hunted them. During the hunting an explosion occurred about 20 yards distant fine on the starboard quarter. There was a column of water about 20 ft. high and a flash was seen below the surface. Minor structural damage was caused. Hull plating below the waterline at the after end was corrugated between the frames abreast the steering compartment and the rudder was missing. Flooding in the steering compartment, due to the loss of the rudder, was controlled. There was minor damage to steering gear and depth charge equipment. Fighting Efficiency - Seriously impaired. The ship was able to steam but unable to steer owing to the loss of the rudder, and had to be taken in tow.

CORVETTES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ASPHODEL 9th March, 1944	Probably an Acoustic Homing Torpedo fired from submarine	Sunk	ASPHODEL was escorting a convoy in the North Atlantic, at 15 knots, when a torpedo hit the ship on the starboard side aft. The stern apparently broke away and sank immediately; the forward portion settled aft and heeled rapidly to port. After the main explosion, nine other separate explosions, probably due to the depth charges, were heard. Within about 50 seconds of being hit ASPHODEL had disappeared.
ALBERNIE (H.M.C.S.) 14th June, 1944	Shell	5 days	ALBERNIE, while operating off the Normandy beaches, was fired on by shore batteries and some damage was sustained. No details are available. Fighting Efficiency - Not seriously impaired.
PINK 27th June, 1944	Probably a Contact Mine in 23 fathoms	Indeterminate Ship not repaired	PINK was operating off the Normandy beaches, at 15 knots, when a mine exploded at the after end. Stern structure in way of the steering compartment was blown away. The short portion of the upper deck remaining abaft the superstructure was blown up 2 ft. and the ship structure was severely damaged. The after bulkhead of the engine room was distorted and leaking. A deep buckle at the fore end of the engine room girthed the upper deck and ship's side to below the waterline. The rudder, propeller and tail-shaft were lost and the inboard shafting bent; the main engines and most auxiliaries were seriously damaged, the bed-plate of the main engine being fractured. Electrical equipment abaft the engine room was wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised and towed back to port.
REGINA (H.M.C.S.) 8th Aug., 1944	Probably a Torpedo fired from submarine	Sunk	REGINA was attacked while escorting a convoy in the English Channel. Evidence indicates that the ship was hit on the port side amidships near the engine room or boiler room. Survivors reported a large flash aft. The ship listed to port and sank by the stern almost immediately. After the explosion REGINA was surrounded by a cloud of smoke and spray.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ORCHIS 21st Aug., 1944	Mine	Indeterminate (Ship beached and considered a total loss)	ORCHIS was operating off the Normandy beaches at 9 knots, when a mine exploded under the starboard side of the bow which was blown off to abreast the 4 inch gun. A deep buckle crossed the deck at the after end of the boiler room. The ship was temporarily immobilised and listed heavily to port. The engine room was partially flooded but the engines were later re-started. Because of the serious damage and extensive flooding the ship eventually had to be beached.
ALBERNIE (H.M.C.S.) 21st Aug., 1944	Torpedo or Mine in 28 fathoms probably the former	Sunk	ALBERNIE was operating off the Normandy beaches at 14 knots, when an explosion occurred on the port side near the after end of the engine room. The ship listed to port, settled by the stern, and sunk in less than 30 seconds.
HURST CASTLE 1st Sept., 1944	Probably an Acoustic Homing Torpedo	Sunk	HURST CASTLE was operating off the north coast of Ireland at 14 knots, when an explosion occurred on the port side aft, probably abreast No.14 oil fuel tank. The steering compartment, after peak, engineers' workshop and store, naval store and provision room flooded immediately. The after engine room bulkhead collapsed almost immediately and the forward engine room bulkhead collapsed within one minute. The forecastle deck abreast the bridge appeared to be buckled on the port side. The steering gear from the bridge failed. The ship listed to port, settled slowly by the stern and finally sank in about 6 minutes. In sinking, the bows rose vertically and hung for some minutes with about 40 ft. above water.
SHAWINIGAN 25th Nov., 1944	Probably a Torpedo fired from submarine	Sunk	SHAWINIGAN, whilst operating south west of Newfoundland, off Duck Island, was attacked by a submarine and sunk. No further information is available.

CORVETTES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
GUILLEMOT 24th Jan., 1945	Three Direct Hit and several 'Shorts' from Shell judged to have been 20 mm. Oerlikon and 30 mm. armour piercing Cannon Shell	Nil	GUILLEMOT was on patrol in the North Sea when a group of E-Boats were intercepted and attacked. Two shell hits in the vicinity of the seamens heads and another in the provision room caused minor damage. Superficial damage to amidship superstructures was caused by splinters from 'Shorts'. Fighting Efficiency - Not impaired.
DENBIGH CASTLE 13th Feb., 1945	One Torpedo probably Acoustic Homing type fired from submarine	Sunk	DENBIGH CASTLE was escorting a convoy into Kola Inlet, North Russia, at 7½ knots, when an explosion occurred at the fore end. Damage could not be accurately assessed but it was known that the bow structure at forecastle deck level, to abreast the forward 4 inch gun was wrecked or missing and that rapid flooding was occurring in most forward compartments on and below the lower deck. 2 hours 3 minutes later the ship was taken in tow, a flooding boundary having been established at the fore bulkhead of the forward boiler room. Excessive trim by the bow allowed progressive flooding into most compartments forward of the boiler room on and above the lower deck, until the forecastle was awash to abreast the bridge and the stern was high out of the water. The ship was beached 7¼ hours after the explosion but due to a sudden heavy list to port she was abandoned 1½ hours later. About 10 minutes later DENBIGH CASTLE capsized to port and slid bodily into deep water. A diver's examination of the wreck revealed that the bow structure for 27 ft. at upper deck level and for 9 ft. at keel level had dropped bodily and the forward 4 inch gun had been thrown onto the squid platform.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BLUEBELL 17th Feb., 1945	Torpedo fired from submarine	Sunk	BLUEBELL, while screening a convoy in Kola Inlet, North Russia, was torpedoed and sunk. Reports from observers on a nearby ship indicated that BLUEBELL increased speed just prior to being torpedoed, probably in an effort to attack the submarine which sank her. The torpedo appeared to have struck aft followed immediately by a heavy explosion. BLUEBELL sank in 30 seconds. Three members of the ships company were rescued of which only one survived.
VERVAIN 20th Feb., 1945	One Contact Torpedo fired from submarine	Sunk	VERVAIN, while escorting a convoy south of Ireland, was struck by a torpedo on the starboard side forward in the vicinity of the reserve feed tanks. After the explosion the bow structure forward of the 4 inch gun was missing and the foremast collapsed. Flooding was thought to have occurred back to the forward bulkhead of the boiler room. The ship was abandoned and sank by the bows with a slight list to starboard 21 minutes after the attack.
TRENTONIAN (H.M.C.S.) 22nd Feb., 1945	One Contact Torpedo fired from submarine	Sunk	TRENTONIAN was escorting a convoy off Falmouth, at 14 knots, when a torpedo struck her on the starboard side aft. Survivors evidence indicated that the torpedo hit abreast the shaft tunnel and that the after bulkhead of the engine room was split. Flooding quickly spread through the after part of the ship and within 4 minutes had reached the engine room by which time the ship was settling by the stern until finally the boiler room was flooding through the fan casings. TRENTONIAN continued to sink slowly with the bow rising vertically until she finally disappeared 10 minutes after the attack.

CORVETTES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PUFFIN 26th March, 1945	Rammed Midget German Submarine	Indeterminate (Ship placed in reserve)	PUFFIN, while on patrol in the North Sea at 12½ knots rammed a midget submarine. Almost immediately afterwards a heavy explosion occurred thought to have been due to the detonation of the submarines torpedo warheads. PUFFIN was lifted bodily at the fore end whipped severely and was showered with burning oil fuel. About 13 ft. of the fore-end - from the keel to just above the lower deck - was blown away and the bow structure sagged; at the point of hinging the hull and deck plating was severely buckled. Two whipping buckles girthed the ship, one forward in the vicinity of the breakwater and the other just abaft the after bulkhead of the engine room. About 22 ft. of the fore-end was open to the sea. Leaks occurred in the forward fresh water tanks - situated abaft the flooding boundary - and in the after oil fuel tanks which were abreast the after whipping buckle. At the time of ramming, the A/S dome was in the down position; the dome was holed and the equipment damaged. The suspension of the gyro compass was broken. Fighting Efficiency - Not seriously impaired. The ship was able to return to port under her own power. The asdics and gyro compass were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEAHORSE 5th Sept., 1939	Near Miss Bombs	4 days	SEAHORSE was bombed while operating in the North Sea. The bombs did no damage, but slight buckling at the bottom of the stem and damage to the A/S cage and gear was caused by grounding. Fighting Efficiency - Impaired.
SPEARFISH 24th Sept.,1939	Depth Charges and Explosive Sweep	5 months	SPEARFISH, while lying on the bottom in about 15 fathoms of water, came under attack from enemy surface craft. Depth charges were heard to explode at various ranges, and a charge from an explosive sweep exploded very close to the submarine. The engine room pressure hull and frames were slightly dished and distorted. Serious H.P. air leaks occurred and the after hydroplane shaft was found to be out of line and jammed. Minor flooding which occurred was controlled. Slight machinery and electrical damage was done. Fighting Efficiency - Severely impaired. The vessel was unable to dive.
TRIUMPH 26th Dec., 1939	One Floating size unknown Contact Mine	2½ months	TRIUMPH, while proceeding on the surface at 6 knots in the North Sea, was struck by a floating mine forward on the port bow. About 18 ft. of the fore end of the submarine was blown away. Forward of 25 station, the structure was set to starboard and the pressure hull buckled. The garboard strake on the port side of the ship amidships was split. Forward of 16 bulkhead complete flooding occurred and between 16 and 25 bulkhead controlled flooding took place. No.1 battery was partially flooded. Slight electrical damage occurred. Fighting Efficiency - Severely impaired. Maximum surface speed was 9½ knots in order not to further damage the structure. The vessel was unable to dive in safety.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNDINE 7th Jan., 1940	(i) Three Depth Charges (ii) Scuttled	Sunk	UNDINE, while operating in the Heligoland Bight, was attacked by enemy trawlers. Three violent explosions lifted the submarine upwards and damaged her so badly that the fore end flooded and had to be abandoned. Serious leaks occurred in the engine room and galley. UNDINE now proved impossible to control and rose almost to the surface exposing herself to the enemy. As she was unable to dive or defend herself she was abandoned, after the main vents had been opened.
STARFISH 9th Jan., 1940	(i) Depth Charges (ii) Scuttled	Sunk	STARFISH, while operating in the Heligoland Bight, was attacked by enemy surface craft. STARFISH dived to the bottom in about 90 ft. of water and was then subjected to heavy depth charge attacks which caused serious damage. Rivets were sheared and leaks in the shell plating of the pressure hull occurred on the starboard side at the fore end. The pressure hull beneath or near the drain oil tanks in the engine room was badly damaged. The external structure was severely damaged. The engine room crank cases and the starboard forward main motor bearing were flooded and both the torpedo trenches and all the bilges were nearly full of water due to leaks. Numerous leaks occurred in the H.P. air line which was strained. After being submerged for 9 hours the generally serious conditions within the submarine made it necessary for an attempt to be made to escape on the surface during the night. The enemy craft, however, were in close proximity when STARFISH surfaced, and quickly illuminated her with searchlights. The order was given to abandon ship and STARFISH was scuttled.
SEAHORSE 10th Jan., 1940	Not known, probably Mine	Sunk	SEAHORSE was lost while operating in the Heligoland Bight. No further details available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRUANT 9th April, 1940	Depth Charges	8 days	TRUANT, while operating off Norway, torpedoed an enemy cruiser and was afterwards subjected to a depth charge attack. The submarine was at 120 ft. diving rapidly to 320 ft. when one pattern of depth charges exploded over the bow, another abreast amidships and a third over the stern. The explosion of the first charges made the fore hatch jump open and shut, admitting water. Slight structural and machinery damage occurred. Fighting Efficiency - Not impaired. REMARKS This incident emphasised the need for stops to be fitted to hatches in the pressure hull to prevent lifting during depth charge etc. attack.
THISTLE 10th April,1940	Probably Torpedo from submarine	Sunk	THISTLE, while operating off the south west of Norway, was attacked and sunk by the German submarine U4. No other details available.
TARPON 14th April, 1940	Probably Depth Charges	Sunk	TARPON, while operating near the entrance to the Skagerrak, was attacked and sunk by enemy surface craft. No other details available.
TRUANT 25th April,1940	Presumed Magnetic Torpedo	18 days	TRUANT, while proceeding on the surface on patrol, at 12½ knots in 35 fathoms of water, sustained a severe explosion forward on the starboard side alongside the fore casing. The submarine was severely shaken but only slight damage occurred to the structure. Several main battery containers were cracked. Torpedoes in Nos. 7 and 8 tubes sheared their securing pins and fell out of the tubes without the heads exploding. Fighting Efficiency - Impaired. Speed under water was reduced.
STERLET 18th April, 1940	Probably Depth Charges	Sunk	STERLET, while operating in the Skagerrak, was attacked and sunk by enemy surface craft. No other details available.

SUBMARINES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEAL 5th May, 1940	Mine	Captured by enemy	SEAL, while operating in the Kattegat, struck a mine, and was apparently holed in the extreme after compartment just abaft the crew space. The mining took place at 90 ft. causing flooding aft to 129 bulkhead. Due to this flooding SEAL bottomed in 200 ft. of water and it required 4 hours of sustained effort before the vessel would rise. Exact details of the damage sustained are not available. SEAL was towed away by the Germans with the water up to the conning tower level.
TAKU 8th May, 1940	Twenty-nine Depth Charges	2 days	TAKU, after attacking some enemy ships with torpedoes, was severely depth charged. Little internal damage was caused. The forward D.S.E.A. hatch was lifted slightly and leaked, and two depth gauges were damaged. Fighting Efficiency - Not seriously impaired.
OLYMPUS May, 1940	Near Miss Bombs	Uncertain	OLYMPUS was damaged by near miss bombs while lying in Malta Dockyard. The damage was not severe, being caused mainly by splinters.
GRAMPUS 24th June, 1940	Not Known	Sunk	GRAMPUS was lost while operating in the Mediterranean off Augusta, Sicily. No further information available.
ODIN 14th June, 1940	Torpedo and Gunfire	Sunk	ODIN was sunk in the Gulf of Taranto by torpedo and gunfire from Italian surface craft. No further details available.
ORPHEUS 27th June, 1940	Probably Torpedo fired from submarine	Sunk	ORPHEUS was probably torpedoed by an Italian submarine between Malta and Alexandria. No further details available.
SEALION 3rd July, 1940	Thirty four Depth Charges	Nil	SEALION, while operating in the Skagerrak, was depth charged by aircraft and surface craft when submerged at 30-60 ft. The asdic set was put out of action and the hydrophones damaged. Flooding, which took place through a leaking stern gland, was controlled by removing the water from the after bilges to the engine room by means of buckets. Fighting Efficiency - Not seriously impaired. The submarine continued on patrol.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SEALION 4th July, 1940	Two Near Miss delay action fuzed Bombs	Nil	SEALION, while operating off Skudesnes, was attacked by aircraft when submerged at 40 ft. Two bombs were dropped, one amidships on the starboard side and one on the port quarter. The explosion of the bombs caused temporary failure of the steering gear, hydroplanes, compass and lighting. A few air leaks were started. Fighting Efficiency - Not seriously impaired. The submarine continued on patrol.
SHARK 6th July, 1940	Probably Depth Charges	Sunk	SHARK was heavily attacked and damaged by German forces off Skudesnes, and was finally scuttled. No further details available.
OLYMPUS 7th July, 1940	One Direct Hit size unknown direct action fuzed Bomb	Uncertain, damaged whilst undergoing repairs	OLYMPUS, while in No.3 Dock at Malta Dockyard, was struck by a bomb during an air raid. The bomb made a hole in the pressure hull starboard abreast the after torpedo hatch. Machinery and electrical equipment were slightly damaged. Fighting Efficiency - Severely impaired.
SALMON 9th July, 1940	Mine	Sunk	SALMON was mined and sunk in the North Sea off South Norway. No further details available.
PHEONIX 21st July, 1940	Not known	Sunk	PHEONIX was lost while operating off the Sicilian coast. No details are available.
NARWHAL 1st Aug., 1940	Not known	Sunk	NARWHAL was lost probably off Trondheim, Norway. No details are available.
OSWALD 1st Aug., 1940	Rammed by destroyer	Sunk	OSWALD, while operating 10 miles south east of Spartivento Bay (Calabria), was rammed and sunk by an Italian destroyer. No further details available.
SPEARFISH 3rd Aug., 1940	Torpedo	Sunk	SPEARFISH, while operating off Stavanger, Norway, was torpedoed by a U-boat and sunk. No further details available.

SUBMARINES - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
THAMES 24th July, 1940 approx.	Probably Mine	Sunk	THAMES, while proceeding to her patrol area, is believed to have crossed a new minefield and was probably mined and sunk.
SEALION 6th Aug., 1940	Rammed by Merchant Ship	Uncertain	SEALION, while attacking an enemy convoy, was rammed by a merchant vessel. No damage occurred to the main structure but the periscope standards were carried away. Fighting Efficiency - Impaired.
H.50 31st Aug., 1940 - 4th Sept., 1940	Underwater Explosions and contact with E-boat	Uncertain	H.50, during the period stated, experienced some underwater explosions and was in contact with an enemy E-boat. One engine was put out of action. No further details available. Fighting Efficiency - Impaired.
OLYMPUS 7th Sept., 1940	One Near Miss Bomb	Nil damaged whilst undergoing repairs	OLYMPUS, while in No.3 Dock at Malta Dockyard, sustained a near miss bomb which fell on the west side of the dock abreast the bridge. The plating of the bridge screen, periscope standards and gun mounting and platform were slightly damaged by splinters and falling masonry. The electrical circuits and leads on the upper deck and bridge were damaged. Fighting Efficiency - Slightly impaired.
RAINBOW 13th Oct., 1940	Shells	Sunk	RAINBOW, while operating off Calabria, Italy, was sunk by gunfire from an Italian submarine.
REGENT 5-9th Oct.,1940	Depth Charges and Collision	1 month	REGENT, while operating in the South Adriatic, came in collision with a caique and sustained damage to the foremost hydroplanes. Later REGENT attacked an enemy convoy and was then severely depth charged causing damage to Y and Z tanks. 8 days after the collision with the caique the starboard foremost hydroplane dropped off on surfacing. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRIAD 20th Oct., 1940	Not known	Sunk	TRIAD was sunk whilst operating off Calabria, Italy. Further details are not known.
H.49 18th Oct., 1940	Depth Charges	Sunk	H.49, while operating off the Dutch Coast, was attacked by enemy surface craft and sunk with depth charges. No further details available.
L.27 5th Nov., 1940	Underwater explosion	2½ months	L.27 was damaged by an underwater explosion. The periscope standards, gun and bridge were wrecked. Fighting Efficiency - Impaired.
SWORDFISH 16th Nov., 1940	Not known	Sunk	SWORDFISH was lost whilst operating off Ushant, from an unknown cause. There is nothing to suggest loss from surface craft or aircraft and no mines had been laid in the area.
REGULUS 6th Nov., 1940 approx.	Not known perhaps Bombs	Sunk	REGULUS, while operating in the Straits of Otranto, was sunk. The cause of sinking is unknown, although the Italians claimed to have sunk a submarine by bombing on the 26th November, 1940, off Loremba.
THUNDERBOLT 17th Dec., 1940	Probably Explosive Sweep	Nil	THUNDERBOLT, after attacking an enemy force in the Bay of Biscay, near the Gironde estuary, was hunted by the enemy, and sustained superficial damage from what was probably an explosive sweep. No.1 battery hull valve leaked and the jumping wire was severed right aft. The main aerial was carried away and the loop aerial damaged. A W/T deck tube was broken. Fighting Efficiency - Not impaired.
TRITON 18th Dec., 1940	Not known probably Mine	Sunk	TRITON was lost while operating in the South Adriatic Sea. No further details available.

SUBMARINES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROVER 7th Jan., 1941	Not known perhaps Torpedo	13 days	ROVER, after an attack on the enemy in the Mediterranean, suffered a violent explosion near the hull and possibly immediately above. It was afterwards thought to have been an enemy torpedo. Severe damage occurred to the batteries, fifty one cells being cracked. A deck tube insulator was cracked and the deck tube flooded. Slight electrical damage occurred and two firing reservoir gauges forward were broken. The chain of the foreplane handgear was thrown off. Fighting Efficiency - Impaired.
SNAPPER 13th Feb., 1941	Probably Mine	Sunk	SNAPPER was lost while operating in the Bay of Biscay. No further details available.
REGENT 22nd April, 1941	Six Near Miss size unknown delay action fuzed Bombs Machine gun and small fragmentation Bombs	2 weeks	REGENT, while in Kotor Harbour, was bombed and machine gunned by Italian aircraft. Six bombs were dropped within 15 ft. of the hull, one of them being only about 3 ft. from the hull, abreast the fore hatch. Afterwards the planes dropped some small bombs which exploded about bridge height, throwing out shrapnel and what appeared to be explosive bullets. The submarine was severely shaken but suffered no structural damage. On arrival at Malta 117 battery containers were found to be cracked. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROVER 24th April, 1941	One Near Miss probably 1000 lbs. delay action fuzed Bomb	3 years including refit	ROVER was lying alongside the port side of YORK in Suda Bay, Crete, when she sustained a near miss bomb which fell about 20 to 30 ft. from the port side of the engine room. The submarine was lifted bodily and settled with a list of 7 degrees and slightly down by the stern. The external plating of Nos.4, 5 and 6 port main ballast tanks was destroyed and other tanks leaked. The pressure hull was strained and leaked in places, especially on the starboard forward side of the engine room where an internal buttstrap was forced $\frac{1}{4}$ inch away from the pressure hull. The portable plate over the forward end of the engine room was forced about $\frac{1}{8}$ inch off the pressure hull in places, most of the bolts on the athwartship line having their heads completely sheared off. In two places in way of the portable plate the pressure hull was fractured from the corner of the aperture to the nearest bolt holes. Severe damage occurred to the main battery but a fire which started in No.3 battery was soon extinguished. It was found however that this fire would restart when the intakes were opened. Acid started wood fires in all three sections of the battery. The gun mounting was badly damaged. The main motors appeared to be undamaged. Fighting Efficiency - Severely impaired. The vessel was towed to port, as, with the battery shattered, it was not possible to proceed under her own power.
USK 3rd May, 1941	Probably Mine	Sunk	USK was lost while operating off Cape Bon, Tunisia, probably having been mined. No further details available.
UNDAUNTED 13th May, 1941	Probably Depth Charge	Sunk	UNDAUNTED was probably sunk by enemy surface craft whilst operating off Tripoli. No further details available.

SUBMARINES - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.32 (U Class) 31st May, 1941	Number unknown Near Miss delay action fuzed Bombs	Nil	P.32, when attacked by an enemy aircraft, dived and was at 70 ft. when the bombs appeared to fall in a line along the length of the submarine on the port side and exploded at an unknown depth. The engine room and D.S.E.A. hatches lifted momentarily and let in a small quantity of water. Some rivets in the torpedo stowage compartment on top of the pressure hull were strained and a leakage occurred. The after hydroplanes jammed at first, then would only work sluggishly. Owing to the steering motor starting switch falling off the steering wheel jammed. Slight damage occurred to electrical circuits, and about 35 containers in the main battery were found to be cracked. The asdic dome was slightly damaged. Fighting Efficiency - Impaired.
TRIUMPH 5th July, 1941	One Shell from shore battery	5 weeks	TRIUMPH was on the surface engaging an enemy merchant ship, near Ras Tayones on the Libyan coast, when she was shelled by a shore battery. One shell hit right forward on the starboard side, holing No.1 main ballast tank on the waterline. Damage occurred inside the tank to Nos.1 to 5 torpedo tube vent and drain pipes, No.1 L.P. Blow pipe and No.3 Bow Cap operating gear. Fighting Efficiency - Impaired.
P.33 (U Class) 15th July, 1941	Depth Charges	Uncertain	P.33, after attacking some enemy vessels, was heavily counter attacked with depth charges. The attack forced the submarine to a maximum depth of 310 ft. and major leaks developed in the fore hatch tunnel through loose rivets, in the bulkhead of No.6 Main Ballast in the way of the after plane operating gear, and at 4 Main Vent pad piece. The steering motor became flooded. Other damage was of a minor nature only. Fighting Efficiency - Impaired.
UNION 22nd July, 1941	Not known perhaps Mine or Depth Charges	Sunk	UNION was sunk while on the Pantelleria, Lampedusa and Tunis area patrol. Italian reports, which were based on strong circumstantial evidence, suggest that she was sunk by Italian surface craft, but mining is suspected.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
OLYMPUS 31st July, 1941	Bombs	10 weeks	OLYMPUS was proceeding at periscope depth when she was bombed by an enemy aircraft which dropped a stick of bombs right on top of the submarine. Many rivets were strained and at least twelve tanks were leaking. The engine room hatch cover plate leaked. About 70 containers in Nos. 2 and 3 batteries were cracked. The Sperry, diving compass, main motor rheostats and all eversheds were put out of action. A W/T deck insulator was broken. Fighting Efficiency - Impaired.
CACHALOT 1st Aug., 1941	Rammed	Sunk	CACHALOT, while operating off the coast of Syrenaica, was rammed and sunk by an Italian destroyer. No further details available.
UNIQUE 20th Aug., 1941	Near Miss delay action fuzed Bombs	Nil	UNIQUE, after attacking an enemy convoy off Tripoli, was bombed whilst at 60 ft. depth. The bombs seemed to burst below the submarine, one on the port beam and one on the port quarter, and the vessel was considerably shaken. An oil fuel leak developed from the forward group of fuel tanks. Leaks occurred in 4 and 5 main ballast tanks and in "0" compensating tanks. The main aerial was damaged. Fighting Efficiency - Impaired. The submarine had to return to port owing to the oil fuel leak leaving a track on the surface.
P.32 (U Class) 18th Aug., 1941 approx.	Probably Mine	Sunk	P.32 sank whilst operating off Tripoli after apparently hitting a mine. The whole of the fore end of the submarine up to the control room crew space watertight door was flooded. She lay on the bottom in 200 ft. of water with a 7° list to port and could not surface. No.2 main battery started to give off chlorine gas rather badly. Some escapes were then made via the conning tower.
P.33 (U Class) 20th Aug., 1941 approx.	Probably Mine	Sunk	P.33 was probably mined whilst operating off Tripoli, Libya. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SUNFISH 2nd Oct., 1941 D.N.C.4B/R99	One Near Miss 250 kgm Bomb	22½ months	SUNFISH, while berthed starboard side to the north wall of the Albert Edward Dock, River Tyne, was damaged by a near miss bomb which exploded 50 ft. from the jetty abreast the fore hatch of the submarine. The external plating on the port side was badly set in between the frames from the bow back to the position of No.5 oil fuel tank. The plating in way of fuel tanks however sustained little or no damage. The garboard strakes over the same length, port and starboard, were pressed in about 1½ to 2 inches except in way of No.1 oil fuel tank. Several frames forward of the magazine to the bow were distorted. A buckle was caused in the submarine in the neighbourhood of the gun access trunk. The port external ballast tanks were badly damaged while the starboard ones were slightly damaged. W.T. doors in the tube compartment would not close satisfactorily. The main engines dropped about ⅜ inch owing to shearing of the securing bolts. The main thrust block covers were distorted. The auxiliary machinery was slightly damaged. The main motors jammed and the forward hydroplane motor was unusable owing to a broken end bracket. All main battery containers and covers were cracked or broken. Widespread damage of a minor nature occurred in various compartments. The gun bearing was fractured and torpedo tubes were out of action. Fighting Efficiency - Seriously impaired. At sea the ship would have been immobilised, armament out of action and inside of hull untenable due to heat and presence of chlorine.
TETRARCH 26th Oct., 1941 - 2nd Nov.,1941	Not known	Sunk	TETRARCH was lost in the Western Mediterranean when on passage from Malta to Gibraltar. The cause of the loss is unknown.
PERSEUS 11th Dec., 1941	Mine	Sunk	PERSEUS was mined and sunk 7 miles north of Zante, Greece. No further information available.
H.31 24th Dec., 1941	Probably Mine	Sunk	H.31 was presumed to have been mined whilst operating in the Bay of Biscay. No further information available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.31 7th Jan., 1942	One Near Miss Bomb	4 weeks including refit	P.31 was in No.1 dock at Malta Dockyard when a bomb, dropped by an enemy aircraft exploded on the dockside. The pressure hull was pierced by splinters in about 20 places, the holes being small. Minor damage occurred to pipe and electrical systems. The after hydroplane ram was badly damaged. Fighting Efficiency - Seriously impaired.
TRIUMPH 30th Dec., 1941 - 9th Jan.,1942	Probably Mine	Sunk	TRIUMPH was sunk, probably by a mine, in the Aegean Sea. No further details are available.
UNBEATEN 20th Jan., 1942	Machine gun and Cannon fire	Nil	UNBEATEN was attacked by an enemy aircraft and the conning tower was hit by machine gun and cannon fire, causing superficial damage. Fighting Efficiency - Unimpaired.
PROTEUS 8th Feb., 1942	Rammed by destroyer	Nil	PROTEUS, while operating off the south west corner of Leukas, or Santa Maura, was attacked by an enemy destroyer. Turning to minimize a ram the submarine passed a few feet from the destroyer on exactly opposite courses. The port hydroplane was struck by the destroyer and snapped off, while the starboard one would not work after the blow. Fighting Efficiency - Impaired.
TEMPEST 13th Feb., 1942	Depth Charges	Sunk	TEMPEST was sunk by an Italian destroyer in the Gulf of Taranto as a result of a prolonged and accurate depth charge attack lasting about seven hours. The asdic and hydrophones were out of action, depth gauges smashed, starboard foreplane out of action, the switchboard came off mounting, the battery was badly damaged and the ship filled with gas. The main line H.P. line telemotor system was satisfactory and the hull undamaged. On the order to abandon ship the motors were left running and vents opened. The motors may have been damaged.

SUBMARINES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
P.38 8th Feb., 1942 - 25th Feb.,1942	Possibly Mine	Sunk	P.38 was lost, possibly mined, whilst operating in the Gulf of Hammamet. No further details are available.
TORBAY 2nd March, 1942	Eighteen Depth Charges	Nil	TORBAY was attacked in the Mediterranean by an enemy surface vessel which dropped depth charges, most of them close to the submarine. The submarine was severely shaken, but no serious damage occurred. Electrical fittings suffered very minor damage and some gauges were upset. Fighting Efficiency - Not impaired.
UPRIGHT 3rd March, 1942	Near Miss Bomb	2 weeks	UPRIGHT, whilst at Malta Dockyard, sustained slight damage from a near miss bomb. Fighting Efficiency - Impaired.
P.39 (U Class) 6th March, 1942	Bomb (whilst undergoing repairs)	Nil see ✠	P.39 was attacked during an air raid on Malta. Some internal damage was caused and the torpedo tubes were put out of alignment. The batteries were damaged. Fighting Efficiency - Impaired.
P.36 (U Class) 6th March, 1942	Bomb (whilst undergoing repairs)	Nil see ✠	P.36 was attacked during an air raid on Malta. One perforation and one dent occurred in the pressure hull above the waterline. Both periscopes sustained damage. Fighting Efficiency - Impaired.
P.39 (U Class) 26th March, 1942	One Bomb	Beached ✠	P.39, during an enemy air attack on Malta, was damaged when a bomb fell and exploded under her. The submarine was split athwartships between 53-54 stations. The watertight doors held and only the P.O's and E.R.A's living space were flooded. P.39 was beached and fittings aboard utilised for other vessels. Later the beached vessel was bombed, receiving further damage.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNBEATEN 1st April, 1942	One Bomb	5 months including refit	UNBEATEN, while at Malta, during an air raid, was damaged by a bomb which fell about 15 yards from the submarine on the starboard bow. The damage to the hull plating was confined to the starboard side as far aft as the cable locker approximately. The flat keel plate was badly dented in one position and the plates at the fore end of A, B and C strakes were badly wrinkled between every frame to a maximum depth of $2\frac{3}{4}$ inches. The plating in way of the torpedo hatch was slightly flattened. Only very slight indentations were made on the port side plating. Framing in way of the torpedo tube compartment was found to be tripped and buckled both above and below the flat. The forward hydroplanes were found to be stiff to work. Minor damage occurred to the main battery. No.3 bow cap was leaking badly. Fighting Efficiency - Impaired.
P.36 (U Class) 1st April, 1942	Bombs	Sunk	P.36 was bombed and sunk in Marsamxett Harbour, Malta, during an enemy air raid. No further details available.
PANDORA 1st April, 1942	Bombs	Sunk	PANDORA, while lying at Hamilton Wharf, Malta, was bombed and sunk. No further details available.
P.34 (U Class) 12th April,1942	Mine	Nil	P.34, while operating south of the Gulf of Taranto, sustained a violent explosion, almost certainly due to a mine, on the starboard side aft. The explosion blew the submarine to the surface. The pressure hull on the starboard side aft was indented over a length of about 22 ft. The fore hatch lifted and admitted a considerable quantity of water. All top stops and spring catches on the torpedo tubes were jammed. Damage occurred to electric light circuits, gauges and ammeters and a container in No.2 battery section was cracked. The after compressor sump was fractured. Fighting Efficiency - Impaired.

SUBMARINES - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UPHOLDER 14th April, 1942	Probably Depth Charges	Sunk	UPHOLDER was probably sunk by Italian surface craft while attacking a convoy in the Gulf of Tripoli. No further details available.
URGE 27th April, 1942 -6th May, 1942	Probably Mine	Sunk	URGE was lost in the Eastern Mediterranean, probably due to mines. No further details available.
OLYMPUS 8th May, 1942	Mine	Sunk	OLYMPUS was sunk by a mine, off the Grand Harbour, Malta. No further details available.
THORN 29th July, 1942 -11th Aug., 1942	Probably Mine	Sunk	THORN, while operating off Libya, in the Eastern Mediterranean was sunk probably due to a mine. No further details available.
PORPOISE 19th Aug., 1942	Twenty-seven Depth Charges	3 weeks	PORPOISE, while operating in the Eastern Mediterranean, was severely depth charged by an enemy destroyer. All main ballast tanks with the exception of No.1 suffered damaged from strained rivets and small cracks along the seams. A small pressure hull leak was found along the strap in the way of the after fresh water tank. All main vents were leaking. Most of the telemotor operated kingstons were defective. The main battery was severely damaged in all three sections, 226 containers in all being broken. Fighting Efficiency - Severely impaired. Owing to lack of electrical current the submarine could not dive.
TALISMAN 18th Sept.,1942	Depth Charges	Sunk	TALISMAN, while operating off Marittimo, Sicily, was depth charged and sunk by enemy surface craft. No further details available.
P.34 September, 1942	Depth Charges	Nil	P.34 was heavily depth charged, one pattern of charges straddling the vessel. The stern glands leaked and main motor bilges started to fill. The asdic and wireless transmitters were temporarily put out of action. Minor internal damage occurred. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNBROKEN 19th Oct., 1942	Twenty Depth Charges	3 weeks	UNBROKEN, after attacking an enemy convoy, was heavily depth charged by enemy destroyers. Electrical equipment and the main batteries were damaged by the explosions. All main lighting was smashed. The after hydroplanes were out of line and out of action. Depth gauges not shut off were smashed. Fighting Efficiency - Impaired. The patrol was abandoned owing to the gassing of battery, voltage drop and other damage.
UNIQUE Sometime after 9th Oct., 1942	Not known	Sunk	UNIQUE was reported off the Scillies on her way to Gibraltar on 9th October. No further news of her was received and the cause of sinking is unknown.
THRASHER 25th Oct., 1942	Thirty Depth Charges	Nil	THRASHER, after attacking an enemy liner, was attacked, with depth charges, by the escort. No serious damaged occurred, but lights were broken, glands leaked and Nos.4 and 5 starboard L.P. tanksides were blown off their seatings, flooding the L.P. line. Fighting Efficiency - Slightly impaired.
TRIBUNE 22nd Nov.,1942	Depth Charges	1 month	TRIBUNE was attacked by an enemy destroyer near Bocca Piccola. Many depth charges were dropped, some of them very close. After the attack a number of rivets in Nos.3 and 4 Port Main Ballast tanks, 'O' Port and Starboard conpensating tanks and 'Q' quick diving tanks were found to be leaking. The H.P. air and telemotor system developed numerous leaks. Electrical equipment suffered damage from shock. Fighting Efficiency - Impaired.
UTMOST 24th Nov.,1942	Depth Charges	Sunk	UTMOST, while operating south west of Marettimo Island, was sunk by an Italian Patrol craft. No further details available.
TRAVELLER 8th Dec., 1942 approx.	Probably Depth Charges	Sunk	TRAVELLER was sunk, whilst operating in the Gulf of Taranto, by Italian surface craft. No further information available.
P.222 12th Dec., 1942	Probably Depth Charges	Sunk	P.222 was sunk whilst operating off Naples probably by depth charges from surface craft. No further information available.

SUBMARINES - 1942/43

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SERAPH 28th Dec., 1942	Ramming	2 months approx.	SERAPH, while engaged in operations off North Africa, rammed an enemy submarine. The stem was damaged by the blow. No further details are available. Fighting Efficiency - Impaired.
P.48 25th Dec., 1942 approx.	Probably Depth Charges	Sunk	P.48, while operating in the Gulf of Tunis was sunk, probably by Italian surface craft. No further details available.
URSULA 30th Dec., 1942	Rammed by enemy	Nil	URSULA, while attacking an enemy convoy, was at 29 ft. submerging, when one of the enemy vessels passed over the submarine and struck it a slight blow on the periscope standards and bridge. Both standards were snapped and the periscopes were bent at the top to about 35 degrees. Superficial damage occurred to the bridge. The upper telegraphs were broken and part of the jumping wire carried away. Fighting Effficiency - Impaired.
P.311 30th Dec., 1942 -8th Jan., 1943	Probably Mine	Sunk	P.311 was lost whilst operating off Maddalena, Sardinia. The cause is unknown but was probably a mine. No further details available.
TIGRIS 6th March, 1943 -10th March, 1943	Not known	Sunk	TIGRIS was lost from an unknown cause whilst operating in the Gulf of Naples. No further details are available.
THUNDERBOLT 13th March, 1943	Depth Charges	Sunk	THUNDERBOLT was depth charged and sunk whilst operating off Cape Milazzo Sicily. No further details are available.
TURBULENT 17th March, 1943 approx.	Probably Mine	Sunk	TURBULENT was lost while operating off Maddalena, Sardinia. The caused was probably a mine. No further details are available.
REGENT 16th April, 1943	Probably Depth Charges	Sunk	REGENT was sunk in the Straits of Otranto by Italian surface craft. No further details are available.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TORBAY 18th April,1943	Near Miss Bombs	2 months	TORBAY, while at Algiers, was subjected to some near miss bombs during an enemy air raid. The plating and framing of the amidship length of the starboard main ballast tanks was indented for about 4 ft. above and below the fendering longitudinal to a maximum of about 8 inches. The H.P. air line developed leaks. Damage occurred to the main battery through cracked cells and electrical defects developed in some equipment. Fighting Efficiency - Impaired.
P.615 18th April, 1943	Probably Torpedo	Sunk	P.615 was sunk by a U-boat off W. Africa. No further details available.
SPLENDID 21st April,1943	Depth Charges and Gunfire from destroyer	Sunk	SPLENDID was about to attack a German destroyer off Capri when she was counter attacked and severely depth charged by the enemy vessel. Three attacks were made the last of which parted the clips on the after D.S.E.A. hatch and jammed the after hydroplanes to 15 degrees dive. The submarine dived to 320 ft., a lot of water entered, and the port motor failed. All tanks were blown and SPLENDID surfaced, to be engaged by gunfire. An attempt was made to release the drop keel but it was not possible to do so. SPLENDID finally sank in very deep water.
SAHIB 24th April,1943	Thirty Depth Charges approx.	Scuttled	SAHIB, while operating north of Cape Milazzo, was attacked by surface craft and heavily depth charged. The compressor outlet valve (behind the starter on the port side of the after end) was blown clean off the ships side leaving a hole about 1½" in diameter. This serious leak could not be plugged owing to its position. 'A' relief valve lifted, 'Q' outboard vent opened and the main line flood in the magazine space opened. These incidents however were quickly dealt with. All main and emergency lighting in the fore end was broken and the depth gauges in the ship gave widely different readings. The main batteries and motors were undamaged and the H.P. air line intact. SAHIB surfaced and was afterwards scuttled.

SUBMARINES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SICKLE 15th May, 1943	Eight Depth Charges	Nil	SICKLE, after attacking an enemy convoy, was depth charged by an enemy trawler while at 100 ft. depth. Structural damage was slight. Practically all zinc protectors on the after part of the submarine were blown off. The compensating water relief valves to external oil fuel tanks lifted admitting a considerable amount of water to the engine room bilges. The tankside compensating valves had apparently partially opened. Several gauges were damaged. The 3 inch ready use locker was forced open. Minor electrical damage occurred. Fighting Efficiency - Not impaired.
SAFARI 7th June, 1943	Depth Charges	Nil	SAFARI, on completion of an attack against an enemy convoy, was depth charged by the escort. During the enemy attack the submarine sank slowly from 200 ft. to 440 ft. Only minor internal damage was caused. Fighting Efficiency - Not impaired.
TACTICIAN 12th June, 1943	Seventeen Depth Charges	Nil	TACTICIAN, during an attack on an enemy convoy, was at 50 ft. depth when she was depth charged by the convoy escort. No damage occurred beyond a few small instrument lights extinguished and the starboard bow light cracked.
UNSHAKEN 22nd June, 1943	Depth Charges	Nil	UNSHAKEN, after an attack on an enemy convoy, was depth charged by the escort. Superficial damage was done to the bridge. Fighting Efficiency - Not impaired.
UNISON 4th Aug., 1943	Shell	Nil	UNISON was shelled by an enemy merchant vessel. Only slight damage occurred. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SARACEN 7th Aug., 1943	Twenty-seven Depth Charges	Nil	SARACEN, while operating in the Mediterranean, was depth charged by an enemy destroyer. The main explosion seemed to be close above the starboard side when the submarine was passing 300 ft. No serious structural damage occurred. The conning tower clips loosened and the forward D.S.E.A. hatch clips were strained. Heavy air leaks occurred through some of the connections on the H.P. air group bottles. Many main line valves and 'Q' outboard vent were sprung off their seatings and, the latter, allowed 500 gallons of water to enter 'Q' tank. Many gauges, the periscopes, log and other fittings were damaged. The main batteries were undamaged, but many minor defects occurred in other electrical equipment through shock. The hydrophones were damaged and the asdic set temporarily out of action. Fighting Efficiency - Impaired. Defects were remedied sufficiently by the ship's staff and on the following day SARACEN carried out a successful torpedo attack.
PARTHIAN 21st July, 1943 -11th Aug.,1943	Possibly Mine	Sunk	PARTHIAN was lost, possibly through mining, whilst operating in the South Adriatic. No further details are available.
SARACEN 18th Aug., 1943	Depth Charges	Sunk	SARACEN was depth charged and sunk by surface craft whilst operating off Bastia, Corsica. No further details are available.
TAURUS August, 1943	Collision with enemy	Nil	TAURUS was attacking an enemy vessel when she found that the target was closer than had been thought. Immediately the submarine started to go deep, but when at 33 ft. a mild bump was felt. It was found that both periscopes were badly damaged and the standards had parted at the joint, all the studs being fractured on the starboard side. Both standards were repairable. Fighting Efficiency - Impaired.
USURPER 24th Sept.,1943 -12th Oct.,1943	Probably Mine	Sunk	USURPER was lost, probably mined, whilst operating in the Gulf of Genoa. No further details are available.

SUBMARINES - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNRIVALLED 12th Oct.,1943	Depth Charges	Nil	UNRIVALLED, when subjected to a depth charge attack, during a patrol, suffered only minor damage. Fighting Efficiency - Not impaired.
TORBAY 16th Oct., 1943	Depth Charges	Nil	TORBAY was subjected to a depth charge attack by enemy surface forces. Both internal engine exhaust pipes were fractured. Fighting Efficiency - Not impaired.
TROOPER 17th Oct., 1943	Probably Mine	Sunk	TROOPER was lost while on patrol, probably from a mine. Her patrol area at the time was west of the Dodecanese and east of Leros.
UNSPARING 31st Oct., 1943	Direct Hit Shell	Nil	UNSPARING, during an engagement with enemy forces, sustained minor damage from gunfire. The shell blew a hole about a foot square in the bridge casing just abaft the conning tower. Both main and emergency aerial leads were severed close to the bridge deck. Slight splinter damage occurred. Fighting Efficiency - Not impaired.
TAURUS 14th Nov., 1943	Six Depth Charges	Nil	TAURUS, while on patrol off the coast of Siam, was attacked with depth charges, by an enemy surface craft. All the charges were very close. Telemotor pressure failed, putting the hydroplanes, steering gear and periscopes out of action. All depth gauges were affected. Fighting Efficiency - Temporarily impaired.
UNSEEN 16th Nov., 1943	Depth Charges	Nil	UNSEEN sustained slight damage as a result of an enemy depth charge attack. Fighting Efficiency - Not impaired.
SIMOON 19th Nov., 1943	Not known	Sunk	SIMOON was lost whilst operating in the Dardanelles Approaches. There is no evidence as to the actual cause of the loss.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TORBAY 27th Nov., 1943	Depth Charges	Nil	TORBAY when depth charged by enemy surface forces, sustained only slight damage. Fighting Efficiency - Not impaired.
SATYR 19th Dec., 1943	Seven Depth Charges Cannon and Machine gun	1 month	SATYR, after attacking a convoy, was subjected to a depth charge attack by the enemy escort vessels. Previous to the depth charging SATYR was admitting water through the drain pipe from the hand emergency cock to the stern tube. This leak proved serious when the submarine bottomed at 362 ft. with a bow up angle. It was imperative to come up to a safer depth to reduce the leak, but on rising, trimming difficulties arose, and the submarine broke surface. SATYR was then attacked by an enemy aircraft with cannon and machine gun, and hits were heard outside before the ship dived again. From the above attacks superficial damage occurred. 'Z' auxiliary tank was leaking due to sprung rivets, leaky kingston or rudder gland. Fighting Efficiency - Impaired. Due to the condition of the submarine it was decided to abandon the patrol.
UNRULY 7th Jan., 1944	Depth Charges	Nil	UNRULY, during an enemy depth charge attack sustained only minor damage. Fighting Efficiency - Not impaired.
TAURUS 7th Feb., 1944	Bomb	Nil	TAURUS was attacked by enemy aircraft, but suffered only minor damage from the bombing. Fighting Efficiency - Not impaired.
SIBYL 8th Feb., 1944	Shell and Depth Charges	Nil	SIBYL, during a patrol, sustained minor damage from shell and depth charge. Several electrical instruments and some depth gauges were damaged. The log would not operate correctly. Fighting Efficiency - Not impaired.

SUBMARINES - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STUBBORN 13th Feb., 1944 D.N.C.N6/BR326	Fifty two Depth Charges	8¼ months including refit	STUBBORN, while patrolling in the Kya area, was heavily depth charged after attacking an enemy convoy. The depth charging lasted for approx. 3 hours and during this period the submarine surfaced twice for reasons unknown, being sighted by the enemy on the second occasion. Finally she bottomed very hard in a depth of 550 to 600 ft. The after planes were jammed at hard-a-dive and the starboard propeller seized temporarily. 'Q' tank was flooded through an outboard vent. Various lights and fuzes were broken. Fighting Efficiency - Impaired. It was found later that the tail fin complete with hydroplanes and rudder were missing.
UNSPARING 19th Feb., 1944	Six Depth Charges	Uncertain	UNSPARING was subjected to an accurate depth charge attack by enemy surface vessels. The charges exploded quite close to the port and starboard sides. Minor distortion of hull plating and a frame occurred. 'Q' outboard vent sprung open and 'Q' tank flooded. The vessel went down to 325 ft. before being held. Minor damage occurred to pipes and electrical circuits and the periscope lenses were covered with dirt and dust internally. Both ready use lockers for the gun were flooded. An abnormal amount of the cork lining inside the hull was shaken down by the shock of the explosions. Fighting Efficiency - Slightly impaired.
TALLY HO 24th Feb., 1944	Rammed by Japanese torpedo boat	2 months	TALLY HO, while operating near the Sembilan islands, was rammed by a Japanese warship which ripped open the port main ballast tanks with her propellers. TALLY HO took up an immediate heavy list to port, but was able to dive to 120 ft. without much trouble. On surfacing later the list was reduced to 12° to port by suitable trimming and the ship returned to base at 10 knots. Fighting Efficiency - Seriously impaired.
VENTURER 6th March, 1944	Depth Charges	Nil	VENTURER sustained minor damage when subjected to an enemy depth charge attack. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ULTOR 11th March,1944	Fourteen Depth Charges	Nil	ULTOR was depth charged by two enemy surface craft. Numerous small leaks occurred in the submarine, but none were of a serious nature. Fighting Efficiency - Not impaired.
UNSWERVING 20th March,1944	Depth Charges	1 month	UNSWERVING sustained minor damage when subjected to an enemy depth charge attack. Fighting Efficiency - Impaired.
STONEHENGE 22nd March,1944	Not known	Sunk	STONEHENGE, while operating off the Nicobar Islands, was sunk. The cause of sinking is unknown. No further details are available.
SYRTIS 28th March,1944	Mine	Sunk	SYRTIS, while operating off Bodo, Norway, was sunk, almost certainly by a mine. The Germans claimed to have sunk a submarine in the area by gunfire from a shore battery. No further details are available.
TAKU 13th April,1944	Mine in about 700 ft. of water	2½ months	TAKU was proceeding at 230 ft. on patrol, in the North Sea near the entrance to the Skagerrak, when a very large explosion occurred overhead. It was estimated that the centre of the shock was about half way between the conning tower and the bows, but the distance from the hull was not estimated. The fore end of the vessel whipped violently and some of the light partition bulkheads were buckled. Leaks occurred in the portable plate in the motor room and in the gun tower horizontal joint, the gun tower being flooded. There was no serious damage to main or auxiliary machinery, and only minor defects in electrical equipment. The 4 inch gun required a thorough examination before being considered safe to fire. Torpedo armament was fit for use. Fighting Efficiency - Impaired.
TACTICIAN 19th April,1944	Shells	Nil	TACTICIAN, while rescuing the pilot of an American aircraft which had crashed in the sea off Sabang, was shelled by Japanese shore batteries. Splinters from a near miss hit the bridge and caused only superficial damage. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
UNTIRING 27th April, 1944	Depth Charges	Nil	UNTIRING received minor damage during a depth charge attack. Fighting Efficiency - Not impaired.
SPORTSMAN 6th May, 1944	Eight Depth Charges	Nil	SPORTSMAN sustained only minor damage when she was subjected to a depth charge attack, while at 160 ft. depth. Aft, the circulating water supply and discharge valves of the starboard compressor were blown open and the relief lifted. Fighting Efficiency - Not impaired.
ULTIMATUM 10th May, 1944	Depth Charges	Nil	ULTIMATUM sustained only minor damage when subjected to a depth charge attack. Fighting Efficiency - Not impaired.
TEMPLAR 26th May, 1944	Depth Charges	Nil	TEMPLAR, while patrolling in the Malacca Straits, attacked an enemy convoy and was then subjected to a depth charge attack by the escort. Some leaks were started and minor electrical defects occurred but no serious damage was done. Fighting Efficiency - Not impaired.
VOX 1st June, 1944	Depth Charges	Nil	VOX sustained only minor damage when depth charged by enemy surface craft. Fighting Efficiency - Not impaired.
SICKLE 18th June, 1944	Probably Mine	Sunk	SICKLE was lost while operating in the Aegean, probably through mining. No further information is available.
SEA ROVER 20th June, 1944	Depth Charges	Nil	SEA ROVER was only slightly damaged by a depth charge attack from enemy surface forces. Several water leaks developed, especially in the headspace drain to stern tube but they were quickly dealt with. Numerous air leaks occurred. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TRUCULENT 26th June, 1944	Depth Charges	Nil	TRUCULENT sustained minor damage in a depth charge attack. Fighting Efficiency - Not impaired.
SPITEFUL 30th June, 1944	One Bomb	Nil	SPITEFUL, during an enemy air attack, sustained only minor damage from a bomb. Fighting Efficiency - Not impaired.
VOX 10th July, 1944	Depth Charges	Nil	VOX sustained slight damage in an enemy depth charge attack. Fighting Efficiency - Not impaired.
SIRDAR 16th July, 1944	Machine gun	Nil	SIRDAR, when subjected to a machine gun attack, sustained only superficial damage. Fighting Efficiency - Not impaired.
TELEMACHUS 19th July, 1944	Depth Charges	Nil	TELEMACHUS sustained slight damage during an enemy depth charge attack. Fighting Efficiency - Not impaired.
STORM 23rd July, 1944	Depth Charges	Nil	STORM sustained slight damage when subjected to an enemy depth charge attack. Fighting Efficiency - Not impaired.
UPSTART 26th July, 1944	Depth Charges	Nil	UPSTART was only slightly damaged after a depth charge attack from enemy surface forces. Fighting Efficiency - Not impaired.
SATYR 20th Aug., 1944	Depth Charges	Nil	SATYR was subjected to an enemy depth charge attack but sustained only slight damage. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TANTALUS 29th Aug., 1944	One Near Miss Bomb	Nil	TANTALUS, when in the Malacca Straits, was attacked by an enemy aircraft. She dived immediately and was at 70 ft. when the bomb fell. Some very minor damage was sustained and the explosion smashed the navigation lights. Fighting Efficiency - Not impaired.
TANTALUS 1st Sept., 1944	Nine Depth Charges	Nil	TANTALUS, when operating off Penang, was accurately attacked with depth charges by an enemy surface vessel. The submarine was severely shaken and minor electrical fittings were smashed and carried away. Two hull valves which jumped off their seatings were the most serious defects. The first was the port main circulating water discharge to the muffler tank which leaked, thereby putting the full diving pressure on to the liner jackets etc. This meant the submarine could not dive below 120 ft. The second leak was the discharge from the oily bilge line, thereby putting pressure on the pump which leaked from cover to gland. Water squirted in and the vessel became heavier and heavier aft. After a time however both defects were remedied. The gyro was severely shaken and temporarily disturbed. Fighting Efficiency - Temporarily impaired.
STORM 1st Sept., 1944	One Direct Hit Shell	Nil	STORM, while on the surface attacking an enemy convoy off Mergui harbour, received a direct hit, with a shell, from one of the enemy escorts. The shell struck the bridge of the STORM and caused only minor damage. Fighting Efficiency - Not impaired.
STRONGBOW 4th Sept., 1944	Two Depth Charges from aircraft	Nil	STRONGBOW received minor damage from two depth charges dropped by enemy aircraft. Fighting Efficiency - Not impaired.
VIVID 10th Sept.,1944	Depth Charges	Nil	VIVID, after attacking a merchant ship, dived to 300 ft. and was then depth charged by the enemy escort. Three charges were dropped, only one of which was near enough to cause any damage. This damage included a leak which developed in the starboard stern tube. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SPIRIT 14th Sept.,1944	Cannon and Machine Gun from aircraft	Nil	SPIRIT received only minor damage when subjected to a cannon fire and machine gun attack from an enemy aircraft. Fighting Efficiency - Not impaired.
TUDOR 16th Nov., 1944	Three Bombs	Nil	TUDOR, when bombed by enemy aircraft, received only slight damage. Fighting Efficiency - Not impaired.
STRATAGEM 22nd Nov., 1944	Depth Charges	Sunk	STRATAGEM was sunk by depth charges from a Japanese destroyer in the Straits of Malacca, the depth of water being 150 ft. One depth charge exploded close underneath, lifting the stern and causing the submarine to hit the bottom hard. This extinguished most of the lights. The next charge exploded amidships and put out the remaining lights. The submarine rapidly flooded throughout.
SHAKESPEARE 3rd Jan., 1945	Five Direct Hit Shells Four Near Miss small Bombs two Near Miss 1000 lb. Bombs	Not repaired	SHAKESPEARE, while operating near Nankauri Strait, surfaced to engage an enemy merchantman with gunfire. The enemy replied and scored four direct hits on the submarine. One shell pierced the pressure hull just forward of the engine room bulkhead door outside the W/T office making a hole 9 inches by 6 inches which was awash when the submarine was underway. The other hits were obtained on the bridge casing and after casing. Later SHAKESPEARE was bombed and raked with machine gun and cannon fire from enemy aircraft. From both these attacks much splinter damage occurred. The gun tower and No.2 port main ballast tank were holed and the upper conning tower hatch could not be shut. The port engine was out of action and the main motors were flooded. Outside the W/T office the starboard side H.P. ring main was severed. The auxiliary oil and water pump, ballast pump, W/T and gyro compass and the diving compass were put out of action, mainly by flooding. Slight damage was sustained by the torpedo tubes. Fighting Efficiency - Severely impaired. The vessel was unable to dive, and was later taken in tow.

SUBMARINES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STRONGBOW 13/14th Jan., 1945	Three Depth Charges	Nil	STRONGBOW sustained slight damage after an enemy depth charge attack. The pressure hull aft was indented at numerous places between frames to a depth varying from 3/16 inch to 7/8 inch. Several small leaks developed in some of the tanks. Three of the four ft. of the casting of L.P. blower were broken. The main engine bearers suffered slight distortion. Minor damage occurred to electrical installations. Fighting Efficiency - Not impaired.
PORPOISE 19th Jan., 1945	Not known probably aircraft	Sunk	PORPOISE was sunk while operating in the Malacca Straits, probably as the result of an aircraft attack. No further details available.
SCYTHIAN 11th May, 1945	Two Direct Hit 6 pounder Shells	Nil	SCYTHIAN, while operating to the south west of Aroa island in the Malacca Straits, surfaced to engage two Japanese landing craft. One of the enemy returned the fire and scored two hits on the casing of SCYTHIAN causing very minor damage. Fighting Efficiency - Not impaired.
SUBTLE 12th May, 1945	Thirteen Depth Charges	Nil	SUBTLE, while operating to the north east of Aroa island in the Malacca Straits, was depth charged by enemy surface forces. Considerable minor internal damage was caused, most of it, electrical. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TERRAPIN 19th May, 1945	Depth Charges	Not repaired	TERRAPIN was severely damaged by an enemy depth charge attack. The pressure hull and frames on the port side forward were crushed inboard to a maximum of fifteen inches, and there were further small indentations in the pressure hull aft. Some circumferential seams of the pressure hull were sprung, causing leakage, but were closed up by subsequent explosions. The aft end of the vessel was deflected slightly upwards. All the forward tube firing gear was displaced or damaged and the tubes leaked through the bow caps. The main engines were unimpaired, but auxiliary machinery suffered some damage. Periscopes, asdic and hydrophones were damaged severely. Several tanks were leaking and others had suspected leaks. Fighting Efficiency - Severely impaired.
TIPTOE 1st June, 1945	Thirteen Depth	Nil	TIPTOE, while operating off the Laurot Islands, was subjected to a depth charge attack by a small enemy destroyer. The asdic tank was flooded and the torpedo armament was put temporarily out of action due to air leaks in the firing system. Fighting Efficiency - Temporarily impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
RAWALPINDI 23rd Nov., 1939	Shell	Sunk	RAWALPINDI, whilst patrolling in the northern portion of the North Sea, was attacked by enemy surface forces, probably DEUTSCHLAND and another German cruiser. RAWALPINDI opened fire immediately, but was herself quickly hit by the enemy shell fire. The ship was soon heavily on fire amidships and the bridge was destroyed; the magazines could not be flooded owing to damage to valve gearing etc. RAWALPINDI continued to burn and following a large explosion the ship rolled over and sank about four and a half hours after the commencement of the action. It is considered probable that the foremost magazine blew up.
CARINTHIA 6th-7th June, 1940	One Contact Torpedo fired by submarine	Sunk	CARINTHIA was struck by a torpedo on the port side immediately abaft the engine room. No.4 hold and the engine room were flooded instantaneously and the ship listed 15-20 degrees to port. All power was lost as a result of the flooding of the engine room. Ship was taken in tow, but was abandoned later, and, as the flooding extended, she sank stern first.
SCOTSTOUN 13th June, 1940	Two Contact Torpedoes fired by submarine	Sunk	SCOTSTOUN was struck by a torpedo on the port side aft whilst patrolling at 15 knots. The ship settled aft, with the port engine and steering gear out of action. About half an hour later a second torpedo struck the ship and caused extensive damage in the vicinity of the after magazines. The ship flooded from aft up to the engine room bulkhead and sank.
ANDANIA 15th June, 1940	One Contact Torpedo fired from submarine	Sunk	ANDANIA, whilst on patrol, was struck by a torpedo on the starboard side between Nos.5 and 6 holds. These holds were flooded and flooding took place in the engine room despite the use of the pumps and ejectors. The ship sank about seven hours after being torpedoed.
ESPERANCE BAY 14th July, 1940 D.N.C.4B/R28	One Direct Hit and Near Miss 220 lbs. delay action fuzed Bombs	Unknown	ESPERANCE BAY, whilst en route for Halifax, Nova Scotia, was attacked by enemy aircraft and a direct hit from a bomb was sustained. The bomb struck aft on the roof of the isolation hospital, passed through B deck and exploded on or just above C deck. The steering gear was wrecked and extensive structural damage was caused in the vicinity of the explosion. No.4, 6 inch gun was blown overboard. Fighting Efficiency - Seriously impaired.

ARMED MERCHANT CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ALCANTARA 28th July, 1940	Several Direct Hit and "Shorts" 5.9 inch Shells	Uncertain	ALCANTARA, while on a patrol in the South Atlantic, intercepted an enemy surface raider which she engaged with gunfire. ALCANTARA received damage from direct hits and "shorts" which caused some flooding and splinter damage. Fighting Efficiency - Slightly impaired.
MOOLTAN 31st July, 1940	Two Near Miss Bombs	Unknown	MOOLTAN, soon after leaving Plymouth on passage for Freetown, was attacked by an enemy aircraft which dropped two heavy bombs, one fell close to the port side aft and the other close to the starboard bow. The first bomb caused considerable damage. In a further attack four hours later two bombs fell close astern and the ship was machine gunned. Fighting Efficiency - Slightly impaired.
TRANSYLVANIA 10th Aug., 1940	One Contact Torpedo fired from submarine	Sunk	TRANSYLVANIA was proceeding from her base when a torpedo hit abreast No.4 gun on the port side. The engine room was flooded immediately and the after end of the ship also flooded quickly. The ship slowly settled, listed to port, and finally sank about four and a half hours after being struck.
DUNVEGAN CASTLE 27th-28th Aug., 1940	Three Contact Torpedoes fired from submarine	Sunk	DUNVEGAN CASTLE, whilst proceeding at 14 knots, was struck by a torpedo abreast the refrigerator and generator rooms on the starboard side, the main engines and generators were brought to a standstill. About half an hour later a second torpedo struck the ship a short distance abaft the point of the first explosion. Forty minutes later a third torpedo struck the port side just abaft the engine room. The ship remained afloat for about seven hours and only sank when the flooding in the engine room and adjacent spaces spread to No.2 hold.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WOLFE 12th Sept.,1940	One Direct Hit Bomb which did not detonate	Nil	WOLFE was attacked by enemy aircraft and one bomb hit the deck, causing slight superficial damage to a ventilator. The bomb did not detonate and was thrown overboard. Fighting Efficiency - Not impaired.
CHESHIRE 14th Oct., 1940 D.N.C.4B/R162	One Torpedo fired from submarine	6 months	CHESHIRE while on patrol, at 15 knots, was struck by a torpedo on the starboard side in the centre of No.2 Hold. A rectangular hole 36 ft. long by 20 ft. deep was made in the ship's side extending approximately from the turn of bilge up to the waterline. The lower deck in way of No.2 Hold was buckled and the tank margin, damaged by splinters. The transverse bulkheads at the forward and after ends of No.2 Hold were perforated by splinters. The plating at the after end of No.2 Hatch in the way of magazine escapes was blown off, the remainder of the plating remaining intact. Nos.2 and 3 Holds, Nos.2 and 3 double bottom tanks flooded immediately while No.1 Hold flooded slowly. Water slowly filtered into No.4 hold to a depth of 2 inches. All flooding was uncontrolled. No.1 Gun sustained minor damage and was out of action. The main and auxiliary machinery was undamaged. Fighting Efficiency - Seriously impaired. No.1 six inch gun was out of action and only a very slow speed could be maintained. REMARKS This incident emphasised the necessity to use other ballast than sand ballast which in this case choked the pump suction.

ARMED MERCHANT CRUISERS - 1940

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PATROCLUS 3/4th Nov.,1940	Seven Contact Torpedoes fired from submarines. Two Direct Hit Shells	Sunk	PATROCLUS was engaged in the rescue of survivors from the s.s. CASANARE when she was torpedoed. Hit No.1 occurred on the starboard side abreast the forward well deck. Hit No.2 occurred in No.4 Hold. Hit No.3 in the cross bunker. Hit No.4 occurred in No.6 Hold and blew S.3 gun overboard. PATROCLUS was then shelled by the U-boat and was hit twice, once amidships and one aft, but this caused no apparent damage. The submarine again submerged when PATROCLUS returned fire. Hit No.5 occurred ten minutes later in No.3 Hold. Hit No.6, 2¾ hours after Hit No.5, occurred right forward underneath the bridge, causing the bridge to completely collapse. Hit No.7 occurred amidships, 5 minutes later. It appeared to strike in the engine room and the ship began to list very rapidly. PATROCLUS rolled over on her starboard side and commenced to sink, until only her bows remained above water. After a considerable time, estimated to be about 2 hours, the ship disappeared completely.
LAURENTIC 3/4th Nov.,1940	Two Direct Hit Torpedoes and explosion cause unknown	Sunk	LAURENTIC, while proceeding at 15 knots, en route to Liverpool, and in the vicinity of the PATROCLUS action, was torpedoed and sunk. Hit No.1 occurred in the starboard side of the engine room, which immediately flooded. Hit No.2 took place on the starboard side abreast No.4 Hold. LAURENTIC sank about 6 hours after the first torpedo had struck, and immediately after a third explosion, cause unknown, had occurred.
JERVIS BAY 5th Nov., 1940	Number unknown Shell	Sunk	JERVIS BAY, while protecting a convoy from an enemy raider, came under very heavy shell fire while her own guns were still outranged. The third salvo put the fore control, steering gear and W/T out of action. JERVIS BAY was continuously hit for nearly an hour and did not sink until three hours after the engagement had started.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
FORFAR 2nd Dec., 1940	Five Torpedoes fired from submarine	Sunk	FORFAR, while on convoy duty, was torpedoed by an enemy submarine. The first torpedo struck on the starboard side in the region of the main engine room putting the engines out of action. A second torpedo struck the ship on the port side shortly followed by another three torpedoes. All the torpedoes were in the vicinity of the engine room. The torpedoes caused the vessel to break her back. The forward and after ends of the vessel rose up towards each other and the vessel sank about 50 minutes after the first torpedo had struck.
CARNARVON CASTLE 5th Dec., 1940 D.N.C.4B/R62	Thirty Nine Direct Hit One "Short" 6" and size unknown Shells	6 months	CARNARVON CASTLE, while in action with an enemy raider, was hit by shellfire. The structural damage was extensive but not serious. There were about 6 hits on the waterline and a few just above which caused flooding in three compartments. There was no damage to the main machinery. A cordite fire amidships was caused by a direct hit on a ready use ammunition locker. Fighting Efficiency - Severely impaired. All fire control was destroyed, together with degaussing, lighting and power circuits. The fire main and sanitary system was damaged. All boats were damaged and rendered unseaworthy. REMARKS This incident emphasised the need for reducing inflammable material to the absolute minimum especially in vessels of the A.M.C. type.
WORCESTERSHIRE 3rd April, 1941	One Contact Torpedo	$3\frac{1}{2}$ months	WORCESTERSHIRE, while escorting a convoy, was torpedoed by a U-boat. The torpedo hit the after end of No.1 hold on the starboard side, causing a hole in the shell plating about 24 ft. by 18 ft. and severely damaging the bulkhead between Nos.1 and 2 holds. The lower and main decks abreast No.1 hatch on the starboard side were sheared off and missing. The blast also badly damaged a portion of the forecastle sheer strake and forecastle deck. Flooding occurred in Nos.1 and 2 holds (including the magazine in No.2 hold) and in Nos.1 and 2 double bottoms starboard. The No.2 double bottom port had a slow leak. A fire started in the forecastle but it was soon extinguished. Fighting Efficiency - Seriously impaired. Steering was jammed temporarily. Slow speed was necessary to avoid further damage to compartments.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
VOLTAIRE 4th April, 1941	Shell	Sunk	VOLTAIRE was sunk while in action with an enemy raider. No details available.
COMORIN 6th April, 1941	Bombs	Sunk	COMORIN was bombed and sunk. No details available.
RAJPUTANA 13th April,1941	Two Contact Torpedoes	Sunk	RAJPUTANA was hit by a torpedo on the port side and one on the starboard side. The engines were disabled and machinery spaces flooded, and the ship was abandoned, finally sinking.
SALOPIAN 13th May, 1941	Six Contact Torpedoes	Sunk	SALOPIAN while proceeding unaccompanied towards Halifax, was torpedoed by a U-boat. 1st torpedo struck on the starboard side at position of the bulkhead between Nos.3 and 4 holds. 2nd torpedo was right forward. 3rd torpedo struck on the port side about No.5 hold. 4th torpedo struck on the starboard side abreast No.5 hold. 5th torpedo was in approximately the same position as No.4. 6th torpedo struck on the port side amidships, breaking the ships back. Four out of the six holds were flooded, but the ship remained on a fairly even keel until her back was broken by the last torpedo and she then sank.
CALIFORNIA 26th March, 1942	One Direct Hit one Near Miss 250 kgm. Bomb	Nil	CALIFORNIA, while proceeding in the English Channel at 15 knots, was attacked by enemy aircraft. One near miss bomb fell astern and a direct hit on the after deck edge ricochetted overboard without exploding. A support to the docking bridge was fractured. Fighting Efficiency - Not impaired.
HECTOR 5th April, 1942	Four Direct Hit 500 & 250 lb. delay action fuzed Bombs	Sunk	HECTOR, while in Colombo Harbour, was attacked by enemy aircraft and sustained direct bomb hits forward of the engine room casing. Nos.1, 2 and 3 holds were flooded. The amidships section was gutted by fire.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CHESHIRE 18th Aug., 1942 D.N.C.4B/168	One Contact Torpedo fired from submarine	3 months including refit	CHESHIRE, while on passage from Freetown to the United Kingdom, was struck near the bow in way of No.1 hold. A hole 40 ft. by 30 ft. deep was made in the port side and the starboard side plating was perforated in many places. All structure below the middle deck was severely distorted. Flooding was immediate in No.1 hold and the fore peak, and slow in No.2 hold. Main and auxiliary machinery was undamaged. Fighting Efficiency - Seriously impaired. 'A' gun was unable to train. The ship proceeded at 8 knots.
ASTURIAS 25th July, 1943	One Contact Torpedo fired from submarine	Repaired in U.S.A. completion date unknown	ASTURIAS, while acting as Ocean Escort to two sections of a floating dock which was being towed from Bahia to Dakar, was struck by a torpedo just abaft the forward bulkhead of the boiler room, on the port side. A hole 23 ft. by 20 ft. approximately was made in the ship's side and the forward bulkhead of the boiler room was extensively damaged. Immediate flooding occurred in the boiler room, engine room, auxiliary machinery room, galley and the deep oil fuel tanks before and abaft the machinery spaces. Partial flooding took place in the forward section of the shaft tunnel, 3 inch H.A. magazine, main provision and refrigerated store rooms and bakery flat. The ship listed $3\frac{1}{2}$ degrees to port. All lighting and power was lost due to flooding of the auxiliary machinery room, and the communications to the engine room failed. Fighting Efficiency - Seriously impaired. The ship was immobilised and taken in tow.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MOSQUITO (River Gunboat) 1st June, 1940	Size and type unknown Bomb	Sunk	MOSQUITO was attacked by enemy aircraft and sunk by bomb during the evacuation from Dunkirk. No further information available.
GANNET (River Gunboat) 6th Sept., 1940	Near Miss size and type unknown Bomb	Nil	GANNET was attacked whilst in the North Atlantic and minor structural damage and flooding was caused by near misses. Fighting Efficiency - Not impaired.
LOCUST (River Gunboat) 8th Oct., 1940 D.N.C.4B/R49	One Non-Contact Acoustic Mine in 15 fathoms	$5\frac{1}{2}$ months	LOCUST was proceeding at 14 knots in a position $3\frac{1}{2}$ cables north of N.W. Shingles Beacon when a heavy explosion occurred 10 to 15 yards astern of her. The plating between frames was dished, up to a maximum of 1 inch, from the middle of the engine room to the stern. The inboard arm of the port 'A' bracket was fractured and minor machinery damage sustained. The hold was flooded from the fresh water tank aft. Fighting Efficiency - Seriously impaired. LOCUST proceeded under her own power until the weather deteriorated when she was taken in tow.
FRANKLIN (Surveying Ship) 19th Nov., 1940	Two Near Miss 50 kgm delay action fuzed Bombs	Nil	FRANKLIN, whilst proceeding at 13 knots in the North Sea, was attacked by enemy aircraft. Six bombs were dropped by the aircraft in a shallow dive and near misses fell 30 ft. to port and 40 ft. to starboard. No structural damage was sustained, but minor machinery damage occurred. Fighting Efficiency - Not impaired.
ALECTO (Submarine Depot Ship) 27th March, 1941	One Direct Hit size unknown delay action fuzed Bomb	Nil	ALECTO was proceeding at 10 knots at the entrance to the English Channel when she was attacked by an enemy aircraft. A bomb carried away the truck of the mainmast and the W/T aerials, struck the water about 50 ft. to port, ricochetted and burst underwater about 100 to 150 yards away. Fighting Efficiency - Not impaired. Temporary loss of W/T aerials.

MISCELLANEOUS SHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PROTECTOR (Net Layer) 22nd April, 1941	Near Miss size and type unknown Bomb	Nil	PROTECTOR, during an air attack on Suda Bay, sustained minor structural and auxiliary machinery damage. Fighting Efficiency - Not impaired.
CORFIELD (Mine Destructor Ship) 9th May, 1941	Near Miss size and type unknown Bomb	Nil	CORFIELD was attacked by enemy aircraft. No structural damage was sustained, but joints in steam pipes were loosened. Fighting Efficiency - Not impaired.
LADYBIRD (River Gunboat) 12th May, 1941	Two Direct Hit size and type unknown Bombs	Sunk	LADYBIRD was dive bombed whilst in Tobruk Harbour. One direct hit occurred aft and another amidships, the after end disintegrated and a serious fire broke out in the remaining structure. LADYBIRD was abandoned and sank in harbour.
FRANKLIN (Surveying Ship) 13th May, 1941	Four Near Miss size and type unknown Bombs	Nil	FRANKLIN was proceeding at 14 knots in the North Sea when a stick of four bombs was dropped by an enemy aircraft, the nearest bomb bursting 50 yards astern. Minor structural damage was sustained and a minor oil fuel leak developed in the port diesel tank. Fighting Efficiency - Not impaired.
FRANKLIN (Surveying Ship) 3rd June, 1941	Two Near Miss 250 kgm delay action fuzed Bombs	9 days	FRANKLIN was attacked by an enemy aircraft whilst weighing a floating beacon in the North Sea. One near miss dropped 40 ft. abreast the mainmast and another 60 ft. abreast the quarter deck. Minor structural damage was sustained abreast the explosions and minor damage occurred to main and auxiliary machinery castings. Minor leaks were caused in No.1 oil fuel tank. Fighting Efficiency - Slightly impaired. The endurance was reduced due to contaminated oil fuel. The gyro compass was damaged.
CRICKET (River Gunboat) 30th June, 1941	Size and type unknown Bomb	Broken up	CRICKET was attacked whilst at Mersa Matruh. Severe structural damage was sustained over the whole length of the ship, the stern dropped about one foot and the boiler room was flooded. CRICKET was a total structural loss.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PROTECTOR (Net Layer) 11th Aug., 1941 D.N.C.4B/R194	One Torpedo Contact dropped by aircraft in 20 fathoms	4 years	PROTECTOR, whilst proceeding at 13 knots from Port Said to Alexandria, was struck by a torpedo abreast the after bulkhead of the engine room on the port side about 7 ft. below the water line. An irregular hole 32 ft. long by 24 ft. deep was blown in the outer bottom, and severe damage caused to internal structure and side plating in the vicinity of the explosion. PROTECTOR was flooded from the forward bulkhead of the engine room to the after bulkhead of the 4 inch magazine. The main machinery was seriously damaged and auxiliary machinery sustained minor damage. All lighting and power was lost. Fighting Efficiency - Severely impaired. PROTECTOR was immobilised due to immediate flooding of the engine room. The H.A. armament was out of action owing to the flooding of the magazines.
WOOLWICH (Destroyer Depot Ship) 5th-6th Sept., 1941	One Near Miss direct action fuzed Bomb	Nil	WOOLWICH, during an air raid on Alexandria, was damaged by a near miss bomb which exploded 40 ft. to starboard abreast the capstan. Extensive splinter damage was sustained above the lower deck forward. The pipe system to the petrol tank was damaged and the fire main cut. Minor fires were started. Fighting Efficiency - Not impaired.
CORFIELD (Mine Destructor Ship) 8th Sept., 1941	Mine	Sunk	CORFIELD was sunk by a mine off the Humber. No further details available.
GNAT (River Gunboat) 21st Oct., 1941	One Contact Torpedo fired from submarine	Indeterminate Ship not repaired	GNAT was 30 miles north east of Bardia when a torpedo struck her under the port anchor. The bow and 30 ft. of the starboard plating was destroyed. The fore end was flooded to the waterline immediately. Minor fires were caused by calcium floats. Engine and boiler rooms were shut down and flooding spread due to adverse weather conditions. Fighting Efficiency - Seriously impaired. GNAT was immobilised and taken in tow.

MISCELLANEOUS SHIPS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LATONA (Fast Minelayer) 25th Oct., 1941 D.N.C.4B/R127	(i) One Direct Hit 250 lbs. delay action fuzed Bomb (ii) Torpedo fired by own forces	Sunk	LATONA was on passage to Tobruk at 26 knots when enemy aircraft attacked and one bomb passed through the port side and burst in the engine room. A serious fire broke out amongst the cargo of munitions and in the engine room. The firemain was cut and out of action. 'Y' gun and pom-pom were also out of action. A heavy explosion aft caused the fire to spread. LATONA was abandoned and sunk by own forces.
PETEREL (River Gunboat) 8th Dec., 1941	(i) Direct Hit Shell (ii) Scuttled	Sunk	PETEREL, whilst in Shanghai harbour, was attacked by a Japanese cruiser and destroyers. Many direct hits set the ship on fire, fore and aft. PETEREL was abandoned and scuttled.
CICALA (River Gunboat) 10th Dec., 1941	One Direct Hit Shell	Indeterminate See below ※	CICALA was at Hong Kong during the Japanese invasion and was hit on the stern with a dud shell, sustaining minor damage. The ship was docked for repairs. Fighting Efficiency - Impaired.
TERN (River Gunboat) 11th Dec., 1941	Near Miss Bombs	Indeterminate Scuttled on 19th Dec., 1941	TERN, whilst at Hong Kong during the Japanese invasion, sustained damage from near miss bombs, one of which put one boiler out of action, damaged the other and blew down the wireless aerials. Fighting Efficiency - Impaired. Speed was reduced to 8 knots.
ROBIN (River Gunboat) 16th Dec., 1941	Near Miss Bombs	Nil	ROBIN sustained superficial damage from splinters whilst at Hong Kong during the Japanese invasion. Fighting Efficiency - Not impaired.
CICALA (River Gunboat) 21st Dec., 1941	(i) Direct Hit and Near Miss Bombs (ii) Depth Charges	※ Sunk	CICALA during the Japanese invasion of Hong Kong, was straddled by five bombs, one or more of which were direct hits. A serious fire developed and got out of control. CICALA was abandoned and sunk by depth charges dropped by own forces from a motor torpedo boat.

MISCELLANEOUS SHIPS - 1941/42

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ROBIN (River Gunboat) 22nd Dec., 1941	Nine Near Miss Bombs	Nil (Scuttled on 25th Dec., 1941)	ROBIN, whilst at Hong Kong during the Japanese invasion sustained minor splinter damage from near miss bombs. Fighting Efficiency - Not impaired.
ENDEAVOUR (Survey Ship) 21st Jan., 1942	Near Miss Bombs	Nil	ENDEAVOUR, whilst operating in the Indian Ocean, west of Achin Head, sustained minor underwater damage from near miss bombs.
CULVER (Ex U.S. Cutter) 31st Jan., 1942	Two Torpedoes fired from submarine	Sunk	CULVER was struck by two torpedoes, one forward and one aft, whilst operating in the North Atlantic. The ship sank in about one minute.
SCORPION (River Gunboat) 9th Feb., 1942	One Direct Hit and Two Near Miss Bombs	Indeterminate see below	SCORPION was on passage to Singapore when a direct bomb hit on 'A' gun R.U. locker caused a fire in the cabin flat. Near misses caused serious damage to the bows and starboard side plating. Fighting Efficiency - Seriously impaired. Speed reduced to 8 knots.
SCORPION (River Gunboat) 13th Feb., 1942	Several Direct Hit Shells	Sunk (See above)	SCORPION was attacked by Japanese Cruiser and Destroyers, a hit in the boiler room punctured the main steam pipe. The ship was repeatedly hit and serious fires started. SCORPION was abandoned, heeled to port, and sank by the bows.
GRASSHOPPER (River Gunboat) 14th Feb., 1942	Two Direct Hit Bombs	Beached on territory in enemy occupation	GRASSHOPPER was en route from Singapore during the evacuation when she sustained two direct bomb hits aft. The ship was beached and abandoned North of Singkep, the after magazine blew up, and a serious fire started.
DRAGONFLY (River Gunboat) 14th Feb., 1942	Three Direct Hit Bombs	Sunk	DRAGONFLY, during the Singapore evacuation, whilst near Blakan Outan, was hit three times and, after about 10 minutes, capsized and sank by the stern. No further information available.

MISCELLANEOUS SHIPS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
LUCIA (Submarine Depot Ship) 5th April, 1942	One Direct Hit 500 lb. delay action fuzed Bomb	14 months	LUCIA, while at Colombo Harbour, sustained a direct hit by a bomb dropped by Japanese aircraft. The bomb struck on the starboard side of the .5 inch machine gun platform, perforated five decks, passed out through the starboard side and exploded under the bottom. A hole 20 ft. by 18 ft. was blown in the bottom plating, damage and flooding was extensive. Fighting Efficiency - Seriously impaired. Speed was reduced to 5 knots.
WELSHMAN (Fast Minelayer) 10th May, 1942	Six Near Miss Bombs	5 months including refit	WELSHMAN, during an air raid on Malta, sustained minor structural damage to the stern. Both cranes were damaged and two turntables on the mining deck unseated. Fighting Efficiency - Seriously impaired. Reduced efficiency of mining gear, and R.D.F.
HECLA (Destroyer Depot Ship) 15th May, 1942 D.N.C.4B/R267	One Contact Mine	18 weeks	HECLA was struck by a mine amidships under the keel. Compartments below the armour deck were severely damaged and open to the sea. Steering gear was out of action. Fighting Efficiency - Seriously impaired.
CENTURION (Demilitarised Battleship) 15th June, 1942	One Direct Hit Several Near Miss delay action fuzed Bombs	Indeterminate	CENTURION was attacked by enemy aircraft whilst operating in the Mediterranean, three bombs fell ahead and damaged the capstan flat. Near Misses off the port side abreast the bridge caused damage to the boiler rooms. A hit on the forecastle perforated the upper deck, passed through the ships side and burst on the water causing minor damage. No.1 dynamo was out of action. Fighting Efficiency - Not seriously impaired. Ship proceeded at $14\frac{1}{2}$ knots.

MISCELLANEOUS SHIPS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MEDWAY (Submarine depot ship) 30th June, 1942 D.N.C.4B/R186	Two possibly three Contact Torpedoes fired from submarine	Sunk	MEDWAY was sunk whilst operating in the Eastern Mediterranean. 1st Torpedo struck the starboard side abreast the generator room. The generator room and torpedo body room were flooded, the engine room flooded slowly. All electrical power failed. 2nd Torpedo struck the starboard side abaft the engine room and caused extensive flooding. Possibly a 3rd torpedo hit the starboard propeller. The starboard engine was out of action. MEDWAY capsized and sank within 17 minutes of the first attack.
LOCUST (River Gunboat) 19th Aug., 1942	One Direct Hit Shell	1 week	LOCUST, during the Combined Operations raid on Dieppe, was under fire from coastal batteries and received a direct hit on the bridge superstructure. Fighting Efficiency - Not seriously impaired.
WALNEY (Ex U.S.A. Cutter) 8th Nov., 1942	Shell	Sunk	WALNEY, during the invasion of North Africa, entered Oran harbour during the initial assault. The ship was seriously damaged by gunfire, but succeeded in landing troops before sinking.
HARTLAND (Ex U.S.A. Cutter) 8th Nov., 1942	Shell	Sunk	HARTLAND, during the invasion of North Africa, entered Oran harbour during the initial assault. Ship was seriously damaged by gunfire, but succeeded in landing troops. Serious fires broke out on board, and HARTLAND later blew up and sank.

MISCELLANEOUS SHIPS - 1942

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PALOMARES (Anti-Aircraft Escort Ship) 9th Nov., 1942 D.N.C.4B/R210	One Direct Hit Two Near Miss 250 kgm delay action fuzed Bombs	7 months including conversion	PALOMARES was attacked by enemy aircraft whil operating in Algiers Bay. The direct hit struck just forward of the after gun, pierced the after gun platform, the upper deck, and burst just below in the crew's accommodation. The after superstructure from the mainmast to the after gun including the type 285 radar office, after gunhouse and the after T.S. office were wrecked. The upper deck was destroyed for 18 ft. by 14 ft. and the lower deck holed 6 ft. by 4 ft. Slow flooding occurred in the gunner's store. Steam and telemotor pipes to steering gear were cut. Electrical equipment in the vicinity of the explosion was destroyed. The type 279 radar office and the after T.S. were severely damaged. A fire started in the ammunition lobby on the upper deck. Ammunition was ignited, but was later extinguished by escaping steam. Two near misses fell to starboard, one abreast the engine room and the other at the fore end, these caused only minor damage. Fighting Efficiency - Seriously impaired. After 4 inch twin mounting, port and starboard pom-poms, and type 279 and 285 radar were out of action. The steering gear was temporarily out of action.
HECLA (Destroyer Depot Ship) 11/12th Nov., 1942 D.N.C.4B/R267	Five Torpedoes fired from submarine	Sunk	HECLA was on passage from Freetown to Gibraltar at 14 knots. Two torpedoes struck the starboard side abreast the boiler rooms. Both boiler rooms were flooded and the ship listed 11 degrees to starboard. All steam was lost immediately. Preparations were made for the ship to be taken in tow. 66 minutes later a third torpedo struck the port side abreast the foremast in the vicinity of the bulkhead between the warhead room and the cold and cool rooms. Immediate flooding of torpedo store, parting space and warhead room, light machine shop, cold and cool rooms and port wing compartments for 172 ft. resulted. The ship listed 17 degrees to port, rapidly increasing to 25 degrees. 10 minutes later a fourth torpedo struck the port side abreast 'X' turret. The list to port rapidly increased, and the ship settled until the quarter deck and port waist were awash. A fifth torpedo struck right aft on the starboard side. The ship heeled over on her beam ends and sank stern first, two hours after the first torpedo hit.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TYNWALD (Auxiliary Anti-Aircraft Ship) 12th Nov., 1942	Mine	Sunk	TYNWALD was sunk whilst operating off Bougie. No further details are available.
MANXMAN (Fast Minelayer) 1st Dec., 1942 D.N.C.4B/R236	One Contact Torpedo fired from submarine	26½ months	MANXMAN was on passage from Algiers to Gibraltar at 21 knots when a torpedo struck the port side abreast the engine room. The outer bottom forward of the after bulkhead of the engine room and from the bilge keel to 9 ft. below the upper deck was holed 28 ft. by 14 ft. The engine and gearing room side plating from keel to sheer strake was seriously buckled and the side framing destroyed or damaged. The main deck was destroyed in way of the torpedo hole and blown upwards over the engine and gearing rooms. The upper deck was generally buckled over this area. The engine and gearing room bulkhead was torn and buckled on the port side. The fore bulkhead of the engine room and the after bulkhead of the gearing room was slightly buckled. Immediate flooding of the engine and gearing rooms and the port shaft tubes and the plummer block and gland compartments occurred. Minor flooding of the pom-pom magazine, starboard shaft tubes and plummer block and gland compartments was controlled. Slow flooding occurred on the lower deck of the ward room and cabin flats. The ship listed 16 degrees to starboard, which was corrected, by pumping, to 9 degrees. The main and auxiliary machinery on port side was wrecked. Serious damage was caused to that on starboard side. Immediate failure occurred of the H.P. and L.P. electrical supplies. The main cables were cut and the after switchboard wrecked. The H.P. and L.P. supplies forward were restored by diesel dynamo and emergency leads led aft. Fighting Efficiency The ship was immobilised and towed to Oran. The engine and gearing room were out of action by damage and flooding. No.3 mounting and asdic were out of action. The efficiency of W/T and Radar were reduced. REMARKS The following lessons were learnt from this incident:- (i) Additional clips and stiffening to be fitted to the existing access hatches to the plummer block and gland compartments to withstand increased pressure. (ii) C.A.F.O.556/43 provides for special shoring for the above hatches. (iii) The prime importance of keeping free surface water off the mining deck was demonstrated.

MISCELLANEOUS SHIPS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
POZARICA (Auxiliary Anti-Aircraft Ship) 29th Jan. - 13th Feb., 1943	(i) One Contact Torpedo dropped by aircraft (ii) Demolition charges	Sunk	POZARICA, on 29th January, whilst escorting a convoy in the Mediterranean, was struck at the after end by a torpedo. The majority of the compartments abaft the engine room were flooded, slow flooding occurred into the engine room. Extensive structural damage was sustained to the stern. Both guns were blown out of the after mounting. POZARICA was taken in tow and grounded in Bougie harbour with the boat deck aft awash. Salvage operations were commenced and minor leaks got under control. On 13th February, 1943, demolition charges used to remove the underwater stern wreckage caused damage to a watertight door in the engine room bulkhead, at the forward end of the shaft passage. The engine room flooded rapidly and the ship capsized. The ship was a total loss.
WELSHMAN (Fast Minelayer) 1st Feb., 1943	Three probably Non-Contact Torpedoes fired from submarine	Sunk	WELSHMAN was proceeding in the Mediterranean at 25 knots when three explosions occurred aft. One under the stern which was thought to have caused the major damage and two others further forward. Serious structural damage occurred abaft the after oil fuel tanks. The mining and upper decks over the after cabin flats were fractured. The after bulkhead and the crown of the after oil fuel tanks were thought to be damaged and leaking. A severe buckle across upper deck abreast after funnel occurred. The flooding was probably immediate in all compartments abaft the after oil fuel tanks and below the mining deck and later extended to the wardroom flat, mining deck, port and starboard plummer block and gland spaces, after oil fuel tanks and gearing room. The ship immediately listed 5 to 10 degrees to starboard with the mining deck practically awash. Both engines stopped. The starboard engine jammed, and the port propeller was probably missing. Calcium floats started minor fire aft. The type 286 radar was out of action. About 53 minutes after the explosions the list to starboard suddenly increased and continued till the ship was on her beam ends. 5 minutes later the ship sank stern first.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ABDIEL (Fast Minelayer) 10th Sept.,1943	Probably a Ground Mine in 12 fathoms type G.N. charge 1800 lbs. (Wired to fire as a time charge)	Sunk	ABDIEL was at anchor in Taranto Harbour when a violent explosion occurred. It was thought to have been under the bottom, and caused severe whipping. The ship broke in two just abaft the engine room. The lower deck was fractured and opened up in way of the forward oil fuel tanks. Flooding was extensive. Both boiler rooms, the main W/T office and low power room are known to have filled rapidly. The secondary lighting came on momentarily and then went out. After the explosion the ship immediately trimmed by the stern and listed to port. She partially righted herself 30 seconds later, but after a period of a few seconds, heeled rapidly over to port and sank by the stern in about 2 minutes. The two extremities remained above water at a very steep angle for a few minutes before finally becoming submerged.
LINNET (Minelayer) 1st Nov., 1943	Probably a Circling Torpedo dropped by aircraft	3 months	LINNET was at anchor in Naples Bay when an explosion occurred at the fore end on the port side abreast the tail cable compartment, and about 4 ft. below the waterline. A hole in ship's side about 10½ ft. long extended from just below the upper deck to within 6 ft. of the keel. The plating abreast the cable compartment was blown in; the forward and after bulkheads were damaged by splinters, and the upper deck was buckled and blown upwards. The forward mine rails were distorted. Immediate flooding, extended over about 56 ft., including the tail cable compartment, the messdecks forward and abaft this compartment, and the port wing spaces below the lower deck. The ship heeled 7 degrees to starboard. Flooding could not be successfully controlled and LINNET was eventually beached stern first. Steam pipes to the forward cable capstan, were fractured. The E/S gear was wrecked. Fighting Efficiency - Seriously impaired. The ship was beached due to uncontrollable flooding at fore end. The forward minelaying equipment and E/S gear were out of action.
VIENNA (Depot Ship) 2nd Dec., 1943	Near Miss Bombs	8 months including refit	VIENNA, during an air raid, whilst in Bari Harbour, was damaged by near miss bombs, but was still seaworthy. No further details available. Fighting Efficiency - Impaired.

MISCELLANEOUS SHIPS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PALOMARES (Anti-Aircraft Ship) 21st Jan., 1944	One Mine in 42 fathoms probably contact	14 months	PALOMARES was steaming slowly off the west coast of Italy when a mine exploded at the after end. The stern was wrecked from the keel to 5 ft. below the upper deck and for 30 ft. forward of the stern post. The stern frame and rudder were destroyed. The ship was open to the sea over 36 ft. forward of the stern post, including the main shaft tunnel and steering compartment. Flooding in the engine room, the port and starboard diesel room and in the after 4 inch magazine was controlled. The steering engine was destroyed and the tail shafting and propeller were missing. The after 4 inch gun was damaged. Three W/T generators were immersed and radar equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was immobilised owing to the loss of propeller and tail shafting. The steering engine and after 4 inch gun were out of action. Type 281 radar was temporarily unusable.
LAWFORD (Frigate converted to L.S.H.) 8th June, 1944	Probably a Torpedo dropped by aircraft	Sunk	LAWFORD, while patrolling off the Normandy beaches, was attacked by enemy aircraft and a burst of tracer was seen to hit the port side amidships. Immediately afterwards a violent explosion occurred abreast the funnel on the port side. The ship was stopped and a heavy list to starboard developed. Five minutes later LAWFORD began to break up amidships and was abandoned. After a further three minutes the structure amidships collapsed and both ends sank until they touched bottom, leaving the extreme bow and stern above water.
LOCUST (River Gunboat) 16th June, 1944	Shell	Nil	LOCUST, while operating off the Normandy beaches, was fired on by shore batteries and hit by shell which caused slight damage. Fighting Efficiency - Not impaired.
ALBATROSS (Seaplane tender) 24th June, 1944	One Direct Hit with 5.9 inch Shell	Nil	ALBATROSS, while operating off the Normandy beaches, was fired on by shore batteries. A shell hit the port pom-pom ready-use magazine, situated on the upper deck just abaft the funnel. There was minor damage only near the burst. Fighting Efficiency - Not impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NITH (Frigate converted to L.S.H.) 24th June, 1944	Composite Aircraft	1 month	NITH was operating off the Normandy beaches, when the lower explosive and pilotless half of a composite aircraft exploded off the starboard side amidships. Splinters caused extensive and serious damage above the waterline. Three forward oil fuel tanks were pierced by splinters and the loss of oil resulted in a $4\frac{1}{2}$ degree list to port. Main and auxiliary steam pipes in the engine room were cut, the compartment was temporarily evacuated and the boilers shut down due to escaping steam. All electrical power failed owing to the loss of steam. Essential services were supplied from the diesel generator. W/T aerials were brought down and types 271 and 291 radar damaged. Fighting Efficiency - Seriously impaired. The ship was temporarily immobilised due to the loss of steam. Armament was in local control and the D.G. out of action.
ALBATROSS (Seaplane tender) 11th Aug., 1944	One Contact Torpedo of "Slow Worm" type	Indeterminate (Ship placed in reserve)	ALBATROSS was at anchor off the Normandy coast when a torpedo struck the fore end just forward of the 4.7 inch magazine, on the port side about 7 ft. below the waterline. The hole in side plating was 20 ft. long by 13 ft. deep with surrounding plating dished inboard from the keel to just below lower deck over a length of 48 ft. Internal damage extended beyond the middle line; the lower deck was badly damaged and blown upwards. The keel was set up about 6 inches in way of the explosion. No damage occurred on the starboard side. There was uncontrolled flooding to the waterline over a length of 104 ft. including the forward 4.7 inch magazine, warhead magazine and gyro compass room. The ship heeled rapidly 15 degrees to port, but was corrected by counterflooding. Electrical power temporarily failed owing to the ring main being fractured. There were many casualties due to carbon-monoxide and nitrous-oxide fumes. (The explosion occurred just under two mess spaces, in the early morning). Fighting Efficiency - Seriously impaired. Speed was reduced due to flooding and resultant trim by the fore end. The forward guns were in local control with magazines flooded.

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.32	6th September, 1940	Machine gun and cannon	Nil
M.T.B.29	11th September, 1940	Shell (Shorts) During bombardment of Dover	Nil
M.T.B.71	11th September, 1940	Shell (Shorts) During bombardment of Dover	4 months
M.T.B.15	23/24th September, 1940	Mine	Sunk
M.T.B.6 (NORWEGIAN)	25th September, 1940	Unknown	Sunk
M.T.B.106	16th October, 1940	Mine	Sunk
M.T.B.17	21st October, 1940	Probably Mine	Sunk
M.T.B.16	31st October, 1940	Unknown	Abandoned
M.T.B.22	31st October, 1940	Mine (Non contact)	7 days
M.T.B.30	1st December, 1940	Shell	Nil
M.T.B.41	14th February, 1941	Mine	Sunk
M.T.B.50	15th May, 1941	Bomb (near miss)	5 months
M.T.B.67	23rd May, 1941	Lost during the evacuation of Crete	Sunk
M.T.B.213	23rd May, 1941		Sunk
M.T.B.214	23rd May, 1941		Sunk
M.T.B.216	23rd May, 1941		Sunk
M.T.B.217	23rd May, 1941		Sunk

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.22	17th June, 1941	Mine (Non contact)	4½ months
M.T.B.71	22nd June, 1941	Machine gun	Nil
M.T.B.49	23rd July, 1941	Machine gun	Nil
M.T.B.51	23rd July, 1941	Machine gun	Nil
M.T.B.71	23rd July, 1941	Machine gun and cannon	2 months
M.T.B.35	9th September, 1941	Shell	33 weeks
M.T.B.218	3rd November, 1941	Shell	Nil
M.T.B.218	3rd December, 1941	Shell	2 months
M.T.B.219	3rd December, 1941	Shell	Nil
M.T.B.221	3rd December, 1941	Shell	Nil
M.T.B.8	16th December, 1941	Bombed during Japanese assault on Hong Kong	Blew up on slipway
M.T.B.10	16th December, 1941		Nil
M.T.B.26	16th December, 1941		Nil
M.T.B.7	19th December, 1941	Shelled when in action against Japanese at Hong Kong	Nil
M.T.B.9	19th December, 1941		Nil
M.T.B.11	19th December, 1941	Shelled when in action against Japanese at Hong Kong	Nil
M.T.B.12	19th December, 1941		Sunk
M.T.B.26	19th December, 1941		Sunk

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.7	26th December, 1941	All ships had received some damage during the bombardment of Hong Kong	Scuttled in 2 fathoms during the evacuation of Hong Kong
M.T.B.9	26th December, 1941		
M.T.B.10	26th December, 1941		
M.T.B.11	26th December, 1941		
M.T.B.27	26th December, 1941		
M.T.B.38	17th January, 1942	Machine gun	3 weeks
M.T.B.47	17th January, 1942	Enemy surface craft	Sunk
M.T.B.71	12th February, 1942	Shell	6 months
M.T.B.31	3rd March, 1942	Shell	30 weeks
M.T.B.42	28th April, 1942	Bomb	Nil
M.T.B.219	13th May, 1942	Shell	Nil
M.T.B.220	13th May, 1942	Shell	Sunk
M.T.B.221	13th May, 1942	Shell	Sunk
M.T.B.229	14/15th June, 1942	Shell	Nil
M.T.B.201	15th June, 1942	Shell	Sunk
M.T.B.32	29th July, 1942	Shell	7 weeks
M.T.B.35	7th August, 1942	Shell	Nil
M.T.B.38	7th August, 1942	Shell	Nil
M.T.B.44	7th August, 1942	Shell	Sunk

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.45	7th August, 1942	Shell	10 months including collision damage repairs
M.T.B.48	7th August, 1942	Shell	Nil
M.T.B.221	7th August, 1942	Shell	Nil
M.T.B.232	7th August, 1942	Shell	Nil
M.T.B.237	7th August, 1942	Shell	Sunk
M.T.B.327	7th August, 1942	Shell	24 days
M.T.B.43	18th August, 1942	Probably shell	Sunk
M.T.B.87	21/22nd August, 1942	Shell	Nil
M.T.B.72	24/25th August, 1942	Shell	1 month
M.T.B.87	28/29th August, 1942	Shell	1 week
M.T.B.230	10/11th September, 1942	Machine gun	1 month
M.T.B.310	14th September, 1942	Bomb	Sunk
M.T.B.312 D.N.C.4B/R219	14th September, 1942	Cannon fire	Sunk
M.T.B.308	14th September, 1942	Bomb	Sunk
M.T.B.234	30th September, 1942	Machine gun	1 month
M.T.B.70	5/6th October, 1942	Shell	Nil
M.T.B.50	29th October, 1942	Shell	Nil

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.87	31st October, 1942	Mine	Sunk	M.T.B.93	16th March, 1943	Shell	8 days
M.T.B.30	18th December, 1942	Mine	Sunk	M.T.B.629	23rd March, 1943	Shell	Nil
M.T.B.264	21st January, 1943	Shell	Nil	M.T.B.315	1st April, 1943	Shell	Nil
M.T.B.260	21st January, 1943	Shell	Nil	M.T.B.625	15th April, 1943	Mine	19 weeks
M.T.B.313	21st January, 1943	Shell	Nil	M.T.B.634	16/17th April, 1943	Shell	Nil
M.T.B.264	1st February, 1943	Shell	Nil	M.T.B.656	16/17th April, 1943	Shell	Nil
M.T.B.77	15/16th February, 1943	Shell	Nil	M.T.B.233	18th April, 1943	Shell	Nil
M.T.B.82	15/16th February, 1943	Shell	Nil	M.T.B.232	21st April, 1943	Shell	Nil
M.T.B.262	24th February, 1943	Presumed mine	Overdue presumed lost	M.T.B.633	28th April, 1943	Shell	Nil
				M.T.B.639	28th April, 1943	Bomb or cannon fire	Sunk by own forces
M.T.B.416	27/28th February, 1943	Shell	Nil	M.T.B.241	29th April, 1943	Shell	2 months
M.T.B.32	28th February, 1943	Shell	Nil	M.T.B.233	29th April, 1943	Shell	Nil
M.T.B.72	28th February, 1943	Shell	Nil	M.T.B.234	29th April, 1943	Shell	Nil
M.T.B.622	10th March, 1943	Shell	Sunk	M.T.B.630	1st May, 1943	Shell	6 days
M.T.B.624	10th March, 1943	Shell	Nil	M.T.B.632	1st May, 1943	Shell	4 days
M.T.B.35	12th March, 1943	Shell	Nil	M.T.B.311	2nd May, 1943	Mine	Sunk
M.T.B.38	12th March, 1943	Shell	Nil	M.T.B.634	4th May, 1943	Bomb	Nil
M.T.B.24	12th March, 1943	Shell	Nil	M.T.B.264	10th May, 1943	Mine	Sunk
M.T.B.613	16th March, 1943	In action off Norway	Sunk				

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.234	14th May, 1943	Shell	Nil	M.T.B.83	17th July, 1943	Shell	3 weeks
M.T.B.232	14th May, 1943	Shell	Nil	M.T.B.223	18th July, 1943	Shell	Nil
M.T.B.244	14th May, 1943	Shell	Nil	M.T.B.244	18th July, 1943	Shell	Nil
M.T.B.632	27th May, 1943	Shell	Nil	M.T.B.356	18th July, 1943	Shell	Nil
M.T.B.628	27th May, 1943	Shell	2 days	M.T.B.75	18/19th July, 1943	Shell	Nil
M.T.B.607	27th May, 1943	Shell	2 days	M.T.B.288	22nd July, 1943	Bomb	Sunk
M.T.B.629	27th May, 1943	Shell	Nil	M.T.B.621	22/23rd July, 1943	Shell	Nil
M.T.B.77	12th July, 1943	Shell	Nil	M.T.B.345	22/23rd July, 1943	Shell	Nil
M.T.B.81	12th July, 1943	Shell	Nil	M.T.B.238	22/23rd July, 1943	Shell	Nil
M.T.B.655	12/13th July, 1943	Shell	Nil	M.T.B.222	22/23rd July, 1943	Shell	5 weeks
M.T.B.656	12/13th July, 1943	Shell	Nil	M.T.B.245	22/23rd July, 1943	Shell	25 days
M.T.B.633	12/13th July, 1943	Shell	Nil	M.T.B.225	24/25th July, 1943	Shell	5 weeks
M.T.B.77	15th July, 1943	Shell	Nil	M.T.B.223	24/25th July, 1943	Shell	7 weeks
M.T.B.82	15/16th July, 1943	Shell	Nil	M.T.B.224	24/25th July, 1943	Shell	Nil
M.T.B.62	16th July, 1943	Shell	Nil	M.T.B.241	24/25th July, 1943	Shell	Nil
M.T.B.57	16th July, 1943	Shell	Nil	M.T.B.244	24/25th July, 1943	Shell	Nil
M.T.B.245	17th July, 1943	Shell	3 months	M.T.B.621	25/26th July, 1943	Shell	10 days
M.T.B.316	17th July, 1943	Shell	Sunk	M.T.B.665	15th August, 1943	Shell	Sunk

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.650 D.N.C.4B/R254	19th August, 1943	Shell	5 weeks	M.T.B.612	20th September, 1943	Shell	1 month
M.T.B.630 D.N.C.4B/R254	19th August, 1943	Shell	12 days	M.T.B.418	27th September, 1943	Shell	Nil
				M.T.B.231	27th September, 1943	Shell	Nil
M.T.B.356	24/25th August, 1943	Shell	Nil	M.T.B.436	30th September, 1943	Shell	Nil
M.T.B.349	25th August, 1943	Shell	Nil	M.T.B.433	30th September, 1943	Shell	Nil
M.T.B.77	8th September, 1943	Bomb	Sunk	M.T.B.636	15th October, 1943	Shell	Sunk
M.T.B.255	8th September, 1943	Shell	Nil	M.T.B.356	16th October, 1943	Shell	Sunk
M.T.B.211	11th September, 1943	Shell	3 weeks	M.T.B.349	16th October, 1943	Shell	1 day
M.T.B.416	11th September, 1943	Shell	Nil	M.T.B.675	16th October, 1943	Cannon fire	3 weeks
M.T.B.249	11th September, 1943	Shell	Nil	M.T.B.313	17th October, 1943	Bomb	3 months
M.T.B.349	14th September, 1943	Shell	Nil	M.T.B.626	20th October, 1943	Shell	Nil
M.T.B.350	14th September, 1943	Shell	Nil	M.T.B.688	25th October, 1943	Shell	Nil
M.T.B.503	19/20th September, 1943	Shell	1 month including A's and A's	M.T.B.669	25th October, 1943	Shell	Sunk
				M.T.B.607	25th October, 1943	Shell	5 months including collision repairs
M.T.B.617	19/20th September, 1943	Shell	2 days				
M.T.B.606	20th September, 1943	Shell	1 month including A's and A's	M.T.B.603	25th October, 1943	Shell	Nil
M.T.B.610	20th September, 1943	Shell	1 week	M.T.B.610	25th October, 1943	Shell	5 weeks

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.442	25th October, 1943	Shell	5 months
M.T.B.439	25th October, 1943	Shell	2 days
M.T.B.240	28th October, 1943	Shell	Nil
M.T.B.208	28th October, 1943	Shell	Nil
M.T.B.621	3rd November, 1943	Shell	3 weeks
M.T.B.650	3rd November, 1943	Shell	8 days
M.T.B.632	3rd November, 1943	Shell	11 days
M.T.B.617	3rd November, 1943	Shell	1 day
M.T.B.630	3rd November, 1943	Shell	2 days
M.T.B.671	3rd November, 1943	Shell	4 days
M.T.B.606	3rd November, 1943	Shell	Sunk
M.T.B.211	4th November, 1943	Shell	Nil
M.T.B.222 H.M.C.S.	9/10th November, 1943	Shell and Collision	Sunk
M.T.B.93	9/10th November, 1943	Mine	1 month
M.T.B.73	24th November, 1943	Bomb	Sunk
M.T.B.287	2nd December, 1943	Bomb	2 months approx.
M.T.B.86	2nd December, 1943	Bomb	1 month approx.

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.243	2nd December, 1943	Bomb	3 weeks approx.
M.T.B.296	2nd December, 1943	Bomb	3 months approx.
M.T.B.289	2nd December, 1943	Bomb	2 months approx.
M.T.B.242	2nd December, 1943	Bomb	5 weeks approx.
M.T.B.290	2nd December, 1943	Bomb	5 weeks
M.T.B.36	2nd December, 1943	Bomb	Not repaired
M.T.B.357	2nd December, 1943	Bomb	Nil
M.T.B.360	10th December, 1943	Shell	Nil
M.T.B.637	19th December, 1943	Shell	Nil
M.T.B.353	23rd December, 1943	Shell	Nil
M.T.B.357	23rd December, 1943	Shell	Sunk. Later salvaged. Not repaired
M.T.B.437	23rd December, 1943	Shell	$3\frac{1}{2}$ months
M.T.B.418	23rd December, 1943	Shell	Nil
M.T.B.700	23rd December, 1943	Shell	3 months
M.T.B.705	23rd December, 1943	Shell	6 weeks
M.T.B.436	23rd December, 1943	Shell	Nil

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.617	24/25th December, 1943	Shell	Nil	M.T.B.417	15th March, 1944	Shell	Sunk
M.T.B.418	29th January, 1944	Shell	6 days	M.T.B.418	15/16th March, 1944	Shell	Nil
M.T.B.417	29th January, 1944	Shell	Nil	M.T.B.253	21/22nd March, 1944	Shell	Nil
M.T.B.443	15th February, 1944	Shell	2 weeks	M.T.B.611	28th March, 1944	Shell	1 month including refit
M.T.B.444	15th February, 1944	Shell	2 months	M.T.B.602	28th March, 1944	Shell	7 weeks
M.T.B.455	15th February, 1944	Shell	6 weeks	M.T.B.608	28th March, 1944	Shell	Nil
M.T.B.439	15th February, 1944	Shell	Nil	M.T.B.614	28th March, 1944	Shell	1 month
M.T.B.441	15th February, 1944	Shell	Nil	M.T.B.615	28th March, 1944	Shell	7 weeks including refit
M.T.B.690	5/6th March, 1944	Shell	1 month	M.T.B.224	30/31st March, 1944	Shell	Nil
M.T.B.689	5/6th March, 1944	Shell	3 weeks	M.T.B.244	30/31st March, 1944	Shell	Nil
M.T.B.694	5/6th March, 1944	Shell	Nil	M.T.B.241	31st March, 1944	Shell	Sunk
M.T.B.695	5/6th March, 1944	Shell	4 months including collision repairs	M.T.B.245	1st April, 1944	Shell	1 week
M.T.B.266	9/10th March, 1944	Shell	Nil	M.T.B.658	5/6th April, 1944	Shell	Nil
M.T.B.617	10th March, 1944	Shell	Nil	M.T.B.315	17th April, 1944	Shell	Nil
M.T.B.705	14th March, 1944	Shell	2 months	M.T.B.671	23/24th April, 1944	Shell	Sunk
M.T.B.724	14th March, 1944	Shell	Nil	M.T.B.227	8th May, 1944	Shell	Nil

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.458	11th May, 1944	Shell	1 day	M.T.B.723	10th June, 1944	Shell	Nil
M.T.B.438	11th May, 1944	Shell	1 month	M.T.B.681	10th June, 1944	Shell	Sunk
M.T.B.456	11th May, 1944	Shell	12 days	M.T.B.712	10/11th June, 1944	Shell	2 weeks
M.T.B.467	11th May, 1944	Shell	5 days	M.T.B.98	11th June, 1944	Shell	Nil
M.T.B.455	11th May, 1944	Shell	4 days	M.T.B.668	13th June, 1944	Mine	3 months
M.T.B.450	12th May, 1944	Shell	Nil	M.T.B.655	18th June, 1944	Shell	2½ months
M.T.B.715	12th May, 1944	Shell	16 days including refit	M.T.B.748	23rd June, 1944	Shell	Nil
M.T.B.453	12th May, 1944	Shell	7 weeks	M.T.B.743	23rd June, 1944	Shell	Nil
M.T.B.454	12th May, 1944	Shell	Nil	M.T.B.745	23rd June, 1944	Shell	1 week
M.T.B.745	23rd May, 1944	Shell	2 weeks	M.T.B.444	25th June, 1944	Shell	Nil
M.T.B.726	23rd May, 1944	Shell	3 days	M.T.B.440	25th June, 1944	Shell	1 month
M.T.B.420	28th May, 1944	Shell	Nil	M.T.B.441	25th June, 1944	Shell	Nil
M.T.B.672	29th May, 1944	Mine	Not repaired	M.T.B.640	26/27th June, 1944	Mine	Sunk
M.T.B.84	30th May, 1944	Machine gun	Nil	M.T.B.698	27th June, 1944	Shell	Nil
M.T.B.694	7th June, 1944	Bomb	Nil	M.T.B.716	27th June, 1944	Shell	3 weeks
M.T.B.647	9/10th June, 1944	Shell	Nil	M.T.B.677	27th June, 1944	Shell	Nil
				M.T.B.710	27th June, 1944	Shell	Nil

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.673	27th June, 1944	Shell	11 days	M.T.B.463 (H.M.C.S.)	8th July, 1944	Mine	Sunk
M.T.B.223	June, 1944	Shell	3 weeks	M.T.B.93	9th July, 1944	Shell	Nil
M.T.B.460 (H.M.C.S.)	3rd July, 1944	Mine	Sunk	M.T.B.434	9th July, 1944	Shell	Sunk
M.T.B.748	4th July, 1944	Shell	5 weeks	M.T.B.245	9th July, 1944	Shell	1 month
M.T.B.469	4th July, 1944	Shell	Nil	M.T.B.455	14th July, 1944	Shell	3 weeks
M.T.B.743	4th July, 1944	Shell	8 days	M.T.B.458	14th July, 1944	Shell	Nil
M.T.B.735	4th July, 1944	Shell	Nil	M.T.B.468	14th July, 1944	Shell	Nil
M.T.B.632	4/5th July, 1944	Shell	4 months	M.T.B.467	14th July, 1944	Shell	1 month
M.T.B.650	4/5th July, 1944	Shell	4 months	M.T.B.469	14th July, 1944	Shell	2 months
M.T.B.723	5th July, 1944	Shell	2 weeks	M.T.B.457	14th July, 1944	Shell	Nil
M.T.B.684	5th July, 1944	Shell	2 weeks	M.T.B.470	14th July, 1944	Shell	Nil
M.T.B.687	5th July, 1944	Shell	Nil	M.T.B.738	14/15th July, 1944	Shell	2 weeks
M.T.B.666	5th July, 1944	Shell	Sunk	M.T.B.350	17th July, 1944	Shell	1 month
M.T.B.621	6/7th July, 1944	Shell	Nil	M.T.B.459	17th July, 1944	Shell	3 months
M.T.B.617	7th July, 1944	Shell	3 months	M.T.B.649	17/18th July, 1944	Shell	Nil
M.T.B.447	8th July, 1944	Shell	Nil	M.T.B.710	18th July, 1944	Shell	Nil
M.T.B.451	8th July, 1944	Shell	1 month				

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.354	18th July, 1944	Shell	9 weeks, including collision repairs
M.T.B.698	18th July, 1944	Shell	Nil
M.T.B.361	18th July, 1944	Shell	6 weeks including collision repairs
M.T.B.700	18th July, 1944	Shell	Nil
M.T.B.94	19th July, 1944	Shell	Nil
M.T.B.687	20th July, 1944	Shell	6 weeks
M.T.B.683	20th July, 1944	Shell	3 weeks
M.T.B.234	21st July, 1944	Shell	3 weeks
M.T.B.232	21st July, 1944	Shell	Nil
M.T.B.474	23rd July, 1944	Shell	Nil
M.T.B.480	23rd July, 1944	Shell	Nil
M.T.B.372	23/24th July, 1944	Shell	Sunk
M.T.B.256	25/26th July, 1944	Shell	Nil
M.T.B.651	25/26th July, 1944	Shell	Nil
M.T.B.430	26/27th July, 1944	Rammed E-boat	Sunk

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.229	27th July, 1944	Shell	Nil
M.T.B.675	2nd August, 1944	Shell	4 days
M.T.B.608	3rd August, 1944	Shell	9 days
M.T.B.677	6th August, 1944	Shell	5 weeks
M.T.B.717	6th August, 1944	Shell	$2\frac{1}{2}$ months
M.T.B.720	6th August, 1944	Shell	Nil
M.T.B.716	6th August, 1944	Shell	6 weeks
M.T.B.728	16th August, 1944	Mine	2 months
M.T.B.720	17th August, 1944	Mine	$2\frac{1}{2}$ months
M.T.B.769	25th August, 1944	Shell	5 weeks
M.T.B.457	26/27th August, 1944	Shell	1 month
M.T.B.468	26/27th August, 1944	Shell	Nil
M.T.B.232	15th September, 1944	Shell	Nil
M.T.B.83	15th September, 1944	Shell	Nil
M.T.B.724	18/19th September, 1944	Shell	Nil
M.T.B.728	18/19th September, 1944	Shell	1 month
M.T.B.347	1st October, 1944	Shell	Sunk
M.T.B.360	1st October, 1944	Shell	Sunk

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.350	1st October, 1944	Shell	Nil	M.T.B.633	3rd December, 1944	Shell	Nil
M.T.B.351	1st October, 1944	Shell	Nil	M.T.B.782	29th December, 1944	Mine	Sunk
M.T.B.467	8/9th October, 1944	Shell	3 months	M.T.B.446	22/23rd January, 1945	Shell	Nil
M.T.B.476	10/11th October, 1944	Shell	2 weeks	M.T.B.495	22/23rd January, 1945	Shell	1 month
M.T.B.638	11/12th October, 1944	Shell	Nil	M.T.B.660	13/14th February, 1945	Shell	Nil
M.T.B.634	11/12th October, 1944	Shell	Nil	M.T.B.634	13/14th February, 1945	Shell	Nil
M.T.B.234	26/27th October, 1944	Shell	Nil	M.T.B.710	13/14th February, 1945	Shell	Nil
M.T.B.480	1st November, 1944	Shell	Nil	M.T.B.655	16/17th February, 1945	Shell	Nil
M.T.B.471	1st November, 1944	Shell	1 month	M.T.B.478	28th February, - 1st March, 1945	Shell	Nil
M.T.B.476	1st November, 1944	Shell	3 days	M.T.B.703	6/7th March, 1945	Shell	Nil
M.T.B.467	2nd November, 1944	Shell	9 weeks	M.T.B.431	9/10th March, 1945	Shell	1 month
M.T.B.464	2nd November, 1944	Shell	Nil	M.T.B.739	9/10th March, 1945	Shell	Nil
M.T.B.486	2nd November, 1944	Shell	Nil	M.T.B.726	9/10th March, 1945	Shell	Nil
M.T.B.485	2nd November, 1944	Shell	Nil	M.T.B.475	9/10th March, 1945	Shell	Nil
M.T.B.491	2nd November, 1944	Shell	Nil	M.T.B.699	13th March, 1945	Mine	Nil
M.T.B.627	13/14th November, 1944	Shell	Nil	M.T.B.710	16/17th March, 1945	Mine	Nil
M.T.B.742	15/16th November, 1944	Shell	Nil	M.T.B.743	17/18th March, 1945	Shell	Nil

MOTOR TORPEDO BOATS (M.T.B's)

COLUMN 1			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.736	17/18th March, 1945	Shell	Nil
M.T.B.394	21/22nd March, 1945	Rammed Submarine	1 month
M.T.B.655	22nd March, 1945	Mine	Sunk
M.T.B.705	23rd March, 1945	Mine	Sunk
M.T.B.723	25/26th March, 1945	Shell	Nil
M.T.B.767	March, 1945	Shell	$2\frac{1}{2}$ months approx.
M.T.B.493	6/7th April, 1945	Rammed E-boat	Not repaired
M.T.B.781	6/7th April, 1945	Shell	5 weeks
M.T.B.5001	7th April, 1945	Shell	Sunk

COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.T.B.494	7th April, 1945	Rammed by E-boat	Sunk
M.T.B.482	7/8th April, 1945	Shell	Nil
M.T.B.633	9/10th April, 1945	Shell	Nil
M.T.B.638	9/10th April, 1945	Shell	2 weeks
M.T.B.710	10th April, 1945	Mine	Sunk
M.T.B.647	10/11th April, 1945	Shell	Nil
M.T.B.746	12/13th April, 1945	Shell	Nil
M.T.B.797	12/13th April, 1945	Shell	Nil
M.T.B.697	16/17th April, 1945	Mine	Sunk

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.40	4th November, 1940	Mine (Contact)	7 months
M.A/S.B.4	4th November, 1940	Mine	6 days
M.G.B.50 (Ex FRENCH)	25th December, 1940	Mine	Nil
M.A/S.B.12	6th February, 1941	Mine	Sunk
M.A/S.B.3	28th February, 1941	Mine (Non-contact)	Beached
M.G.B.61	10th March, 1941	Bomb (near miss) Air raid on Portsmouth	3 weeks
M.G.B.98	11th March, 1941	Bomb Air raid on Portsmouth	Sunk
M.G.B.42	17th March, 1941	Mine (Contact)	4 months
M.G.B.61	29th April, 1941	Machine gun and cannon	Nil
M.G.B.71	17th June, 1941	Mine (Non-contact)	2 months
M.G.B.63	25th July, 1941	Bomb (near miss)	Nil
M.G.B.70	22nd August, 1941	Bomb (near miss) and machine gun	Nil

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.52	9th September, 1941	Shell	Nil
M.G.B.43	9th September, 1941	Shell	5 weeks
M.G.B.8	18th September, 1941	Shell	Nil
M.G.B.43	3/4th November, 1941	Shell	Nil
M.G.B.42	3/4th November, 1941	Shell	4 months
M.G.B.317	16th November, 1941	Shell	Nil
M.G.B.312	16th November, 1941	Shell	Nil
M.G.B.314	16th November, 1941	Shell	Nil
M.G.B.89	November, 1941	Shell	4 months (approx.)
M.G.B.324	3rd December, 1941	Shell	Nil
M.G.B.328	3rd December, 1941	Shell	Nil
M.G.B.65	20th December, 1941	Machine gun	Nil
M.G.B.67	20th December, 1941	Machine gun	Nil
M.G.B.59	12th February, 1942	Shell	8 months
M.G.B.91 D.N.C4B/R101	15th March, 1942	Shell	6 weeks
M.G.B.88 Ex. U.S.A.	15th March, 1942	Shell	1 month
M.G.B.87	15th March, 1942	Shell	Nil

MOTOR AND STEAM GUNBOATS AND M.A/S.B's (M.G.B's and S.G.B's)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.64	21/22nd April, 1942	Shell	6 weeks
M.A/S.B.31	23rd April, 1942	Bomb	2 months
M.G.B.48	28th April, 1942	Bomb	Indeterminate Damaged whilst undergoing repairs
M.G.B.89	April, 1942	Shell	7 weeks approx.
M.G.B.9	13th May, 1942	Shell	Nil
M.G.B.13	13th May, 1942	Shell	Nil
M.G.B.41	15th June, 1942	Shell	Nil
S.G.B.7	19th June, 1942	Shell	Sunk
M.G.B.83	June, 1942	Shell	1 month
S.G.B.4 (Now GREY FOX)	10th July, 1942	Rammed by R-boat	10 weeks
M.G.B.77	14/15th July, 1942	Shell	3 weeks
M.G.B.601 D.N.C.4B/R117	21st July, 1942	Shell	Sunk
M.G.B.322	21st July, 1942	Shell	5 weeks
M.G.B.328	20/21st July, 1942	Shell	Sunk

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.A/S.B.31	25th July, 1942	Machine gun	Nil
S.G.B.3 (Now GREY SEAL)	26th July, 1942	Shell	7 weeks
S.G.B.6 (Now GREY SHARK)	26th July, 1942	Shell	4 months
M.G.B.67	29th July, 1942	Shell	3 months
M.G.B.61	29th July, 1942	Shell	Nil
M.G.B.332	31st July, 1942	Shell	1 month
M.G.B.335	31st July, 1942	Shell	8 days
M.G.B.327	31st July, 1942	Shell	1 month
M.G.B.320	31st July, 1942	Shell	15 weeks including refit
M.G.B.315	31st July, 1942	Shell	Nil
M.G.B.323	31st July, 1942	Shell	Nil
M.G.B.321	31st July, 1942	Shell	6 weeks
M.G.B.20	July, 1942	Shell	3 months approx.
M.G.B.41	6th August, 1942	Shell	Nil

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.324	6th August, 1942	Shell	1 month	M.G.B.82	10/11th September, 1942	Machine gun	7 weeks
M.G.B. S.3	6th August, 1942	Shell	18 days	M.G.B.84	10/11th September, 1942	Machine gun	7 weeks
M.G.B.330	6th August, 1942	Shell	Nil	M.G.B. 91	10/11th September, 1942	Machine gun	7 weeks
M.G.B.331	6th August, 1942	Shell	Nil	M.G.B.10	11th September, 1942	Bomb	Nil
M.G.B.13	14th August, 1942	Shell	4 days	M.G.B.325	11th September, 1942	Shell	10 days
M.G.B.6	16th August, 1942	Shell	Nil	M.G.B.327	11th September, 1942	Shell	Nil
M.G.B.10	16th August, 1942	Shell	2 weeks	M.G.B.334	11th September, 1942	Shell	Nil
M.G.B.330	16th August, 1942	Shell	14 weeks	M.G.B.18	29th September, 1942	Shell	Sunk
M.G.B.331	16th August, 1942	Shell	Nil	M.G.B.86	30th September, 1942	Shell	Nil
M.G.B.609	16th August, 1942	Shell	15 weeks	M.G.B.21	30th September, 1942	Shell	16 days
S.G.B.5 (Now GREY OWL)	21st August, 1942	Shell	6 months	M.G.B.82	30th September, 1942	Shell	1 month
M.G.B.6	24th August, 1942	Shell	Nil	M.G.B.610 (Now M.T.B.610)	30th September, 1942	Shell	9 weeks
M.G.B.7	24th August, 1942	Shell	Nil	M.G.B.606 (Now M.T.B.606)	30th September, 1942	Shell	1 month
M.G.B.61	24/25th August, 1942	Shell	Nil	M.G.B.605 (Now M.T.B.605)	30th September, 1942	Shell	9 days
M.G.B.65	24/25th August, 1942	Shell	Nil	M.G.B.78	2/3rd October, 1942	Shell	Sunk
M.G.B.335	10/11th September, 1942	Shell	Sunk	M.G.B.75 (Now M.T.B.413)	5/6th October, 1942	Shell	6 weeks
M.G.B.21	10/11th September, 1942	Machine gun	Nil				

MOTOR AND STEAM GUNBOATS AND M.A/S.B's (M.G.B's and S.G.B.'s)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.76	6th October, 1942	Shell	Sunk
M.G.B.317	29th October, 1942	Shell	6 weeks
M.G.B.19	6th November, 1942	Bomb	Wrecked on Slipway
M.G.B.109 D.N.C.4B/R245	7th February, 1943	Mine	Wrecked beyond repair
M.G.B.81 (Now M.T.B.416)	28th February, 1943	Shell	Nil
M.G.B.77 (Now M.T.B.414)	28th February, 1943	Shell	9 weeks
M.G.B.111 (Now M.T.B.430)	28th February, 1943	Shell	Nil
M.G.B.79	28th February, 1943	Shell	Sunk
M.G.B.110	12th March, 1943	Shell	10 weeks
M.G.B.113 (Now M.T.B.432)	12th March, 1943	Shell	Nil
M.G.B.114 (Now M.T.B.433)	12th March, 1943	Cannon fire	Nil
M.G.B.606 (Now M.T.B.606)	27/28th March, 1943	Shell	Nil
M.T.B.607 (Now M.T.B.607)	27/28th March, 1943	Shell	Nil
M.G.B.603 (Now M.T.B.603)	28th March, 1943	Shell	Nil

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.321	28/29th March, 1943	Shell	15 weeks
M.G.B.333	29th March, 1943	Shell	2 weeks
M.G.B.110	5th April, 1943	Shell	7 weeks
M.G.B.113 (Now M.T.B.432)	5th April, 1943	Shell	4 months
M.G.B.603 (Now M.T.B.603)	12th April, 1943	Shell	Nil
M.G.B.606 (Now M.T.B.606)	12th April, 1943	Shell	Nil
M.G.B.112 (Now M.T.B.431)	13th April, 1943	Shell	Nil
GREY SHARK	15/16th April, 1943	Shell	Nil
M.G.B.608 (Now M.T.B.608)	15/16th April, 1943	Shell	5 months including collision repairs)
M.G.B.603 (Now M.T.B.603)	30th April, 1943	Shell	Nil
M.G.B.67	30th April, 1943	Shell	Nil
M.G.B.58	30th April, 1943	Shell	Nil
M.G.B.610 (Now M.T.B.610)	1st May, 1943	Shell	2 days
M.G.B.605 (Now M.T.B.605)	1st May, 1943	Shell	15 days

COLUMN 1			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.657	4th May, 1943	Shell	Nil
M.G.B.646	4th May, 1943	Bomb	Nil
M.G.B.116 (Now M.T.B.435)	28th May, 1943	Shell	Nil
M.G.B.110	29th May, 1943	Shell	Sunk
M.G.B.614 (Now M.T.B.614)	29th May, 1943	Shell	2 months
M.G.B.108 (Now M.T.B.418)	29th May, 1943	Shell	9 days
M.G.B.118 (Now M.T.B.437)	29th May, 1943	Shell	9 days
M.G.B.108 (Now M.T.B.418)	8th June, 1943	Shell	Nil
M.G.B.114 (Now M.T.B.433)	8th June, 1943	Shell	Nil
M.G.B.648	14th June, 1943	Bomb	Sunk
M.G.B.643	24/25th June, 1943	Mine	Nil
M.G.B.644	24/25th June, 1943	Mine	Sunk
M.G.B.641	14/15th July, 1943	Shell	Sunk
M.G.B.119 (Now M.T.B.438)	22/23rd July, 1943	Shell	1 month
M.G.B.610 (Now M.T.B.610)	22/23rd July, 1943	Shell	Nil

COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.122 (Now M.T.B.441)	22/23rd July, 1943	Shell	9 days
M.G.B.607 (Now M.T.B.607)	25th July, 1943	Shell	26 days including A's & A's
M.G.B.612 (Now M.T.B.612)	25th July, 1943	Shell	Nil
GREY GOOSE D.N.C.4B/R285	27th July, 1943	Shell	11 days
GREY WOLF D.N.C.4B/R285	27th July, 1943	Shell	10 weeks including collision repairs
GREY SHARK D.N.C.4B/R285	27th July, 1943	Shell	5 weeks
GREY SEAL D.N.C.4B/R285	27th July, 1943	Shell	1 month including collision repairs
M.G.B.611 (Now M.T.B.611)	28th July, 1943	Shell	3 weeks
M.G.B.616 (Now M.T.B.616)	28th July, 1943	Shell	1 month
M.G.B.605 (Now M.T.B.605)	4th August, 1943	Shell	11 weeks, including collision repairs
M.G.B.613 (Now M.T.B.613)	17th August, 1943	Shell	1 month

MOTOR AND STEAM GUNBOATS AND M.A/S.B's (M.G.B's and S.G.B's)

COLUMN 1

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
GREY GOOSE	4th September, 1943	Shell	2 months
GREY OWL	4th September, 1943	Shell	Nil
GREY SEAL	4th September, 1943	Shell	Nil
GREY FOX	4th September, 1943	Shell	Nil
GREY SEAL	22nd September, 1943	Shell	Nil
GREY FOX	27th September, 1943	Shell	Nil
M.G.B.658	14/15th October, 1943	Shell	Nil
M.G.B.315	25th October, 1943	Shell	Nil
M.G.B.21	20th March, 1944	Shell	Nil
M.G.B.645 D.N.C.4B/R325	2nd May, 1944	Shell	3¾ months
M.G.B.661	18/19th May, 1944	Shell	Nil
GREY SEAL	24/25th May, 1944	Shell	Nil
GREY OWL	24/25th May, 1944	Shell	6 months
M.G.B.674	30th May, 1944	Machine gun	Nil
M.G.B.674	9/10th June, 1944	Shell	Nil
M.G.B.17	11th June, 1944	Mine	Sunk
M.G.B.658	18th June, 1944	Shell	Nil
M.G.B.326	27th June, 1944	Mine	Sunk

COLUMN 2

SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.G.B.662	7/8th August, 1944	Shell	Nil
M.G.B.313	16th August, 1944	Mine or Torpedo	Sunk
M.G.B.657	17/18th August, 1944	Shell	Nil
M.G.B.658	17/18th August, 1944	Shell	Nil
M.G.B.319	August, 1944	Mine	2 weeks
M.G.B.657	12th September, 1944	Mine	Not repaired
M.G.B.642	8/9th October, 1944	Shell	Nil
M.G.B.663	10th October, 1944	Mine	Sunk
M.G.B.662	11/12th October, 1944	Shell	Nil
M.G.B.647	10th April, 1945	Shell	Nil
M.G.B.2002	12th May, 1945	Mine	Sunk

COLUMN 1			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.M.S.18	11th May, 1941	Bomb (Near Miss)	Nil
M.M.S.1	11th May, 1941	Bomb (Near Miss) Air Raid on London	12 days
M.M.S.16	12th June, 1941	Mine	1 month
M.M.S.2	June, 1941	Mine	1 month
M.M.S.3	10th July, 1941	Mine	2 months
M.M.S.39	7th August, 1941	Mine	Sunk
M.M.S.40	1st October, 1941	Mine	3 weeks
M.M.S.9 D.N.C.4B/R198	26th October, 1941	Mine	6 months
M.M.S.44	13th November, 1941	Mine	3 weeks
M.M.S.51	4th March, 1942	Shell	Scuttled
M.M.S.136	23rd April, 1942	Mine	1 month
M.M.S.173	6th May, 1942	Bomb	Nil
M.M.S.56	15th June, 1942	Mine	10 weeks
M.M.S.82	15th June, 1942	Mine	Nil
M.M.S.59	15th June, 1942	Mine	1 month
M.M.S.6	19th June, 1942	Mine	10½ months
M.M.S.61	9/10th July, 1942	Mine	11 weeks including refit

COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
M.M.S.68	14th July, 1942	Mine	6 weeks
M.M.S.64	12th October, 1942	Cannon and Machine gun	Nil
M.M.S.89	12th May, 1943	Mine	Sunk
B.Y.M.S.2019	19th September, 1943	Mine	Sunk
M.M.S.70	24th September, 1943	Mine	Sunk
M.M.S.287 D.N.C.4B/R271	17th October, 1943	Shell	7 weeks
B.Y.M.S.2073	11th November, 1943	Bomb	Nil
M.M.S.3	29th November, 1943	Mine	Not to be repaired
M.M.S.101	11th June, 1944	Mine	Nil
B.Y.M.S.2003	13th June, 1944	Mine	Nil
M.M.S.45	13th June, 1944	Shell	Nil
M.M.S.229	13th June, 1944	Mine	Sunk
M.M.S.113	14th June, 1944	Mine	3½ months
M.M.S.279	17th June, 1944	Mine	Nil
M.M.S.7	18th June, 1944	Bomb	6 weeks
M.M.S.8	24th June, 1944	Mine	Sunk
M.M.S.40	27th June, 1944	Mine	Sunk, later refloated 4½ months
M.M.S.1019	2nd July, 1944	Mine	Sunk

MOTOR MINESWEEPERS (M.M.S's and B.Y.M.S's)

COLUMN 1				COLUMN 2			
SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION	SHIP	DATE	NATURE OF ATTACK	TIME OUT OF ACTION
B.Y.M.S.2069	2nd July, 1944	Mine	5 months approx	B.Y.M.S.2076	November, 1944	Mine	2½ months approx.
M.M.S.55	10th July, 1944	Mine	Sunk	M.M.S.257	11th December, 1944	Mine	Sunk
B.Y.M.S.2079	15/16th July, 1944	Mine	6 weeks	B.Y.M.S.2234	17th December, 1944	Mine	Nil
M.M.S.181	22nd July, 1944	Mine	6 months	M.M.S.248	30th January, 1945	Mine	Sunk
M.M.S.279	5th August, 1944	Mine	Nil	M.M.S.68	4th February, 1945	Mine	Sunk
B.Y.M.S.2022	16th August, 1944	Mine	Sunk	B.Y.M.S.2157	March 1945	Mine	3 months approx
M.M.S.117	1st September, 1944	Mine	Sunk	B.Y.M.S.2053	28th April, 1945	Mine	Sunk
M.M.S.87	3rd September, 1944	Mine	Nil	B.Y.M.S.2070	3rd June, 1945	Mine	Nil
M.M.S.49	5th September, 1944	Mine	Nil	M.M.S.168	25th June, 1945	Mine	Sunk
M.M.S.115	1st October, 1944	Mine	2½ months including refit	B.Y.M.S.2071	3rd August, 1945	Mine	Nil
B.Y.M.S.2154	3rd October, 1944	Mine	Nil	B.Y.M.S.2026	August, 1945	Mine	Nil
B.Y.M.S.2255	5th October, 1944	Mine	Sunk				
B.Y.M.S.2030	8th October, 1944	Mine	Sunk				
B.Y.M.S.2011	11th October, 1944	Mine	Nil				
M.M.S.170	12th October, 1944	Mine	Sunk				
B.Y.M.S.2077	25th October, 1944	Mine	Sunk				
M.M.S.175	11th November, 1944	Mine	10 weeks				
M.M.S.101	30th November, 1944	Mine	Sunk				

GENERAL ALPHABETICAL INDEX OF MAJOR H.M. WAR VESSELS DAMAGED OR SUNK BY ENEMY ACTION DURING THE PERIOD SEPTEMBER 1939 - SEPTEMBER 1945

NOTES:-
Column 1 includes Machine Gun Attack
Column 2 includes Suicide Planes
Column 4 includes Human Torpedoes and Explosive Motor Boats
/ Denotes Ship Sunk

Ship	Type	Attack 1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
ABDIEL	Fast Minelayer			411 /		
ABELIA	Corvette			355		
ABERCROMBIE	Monitor			111, 112		
ABINGDON	Minesweeper		304 /	301		
ACASTA	Destroyer	136 /				
ACHATES	"	226 /				
ACHERON	"		145	154 /		
ACHILLES	Cruiser	40	90			
ACUTE	Minesweeper				308	
ADVENTURE	Cruiser/Minelayer		61	38, 57		
AFFLECK	Frigate				288	
AFRIDI	Destroyer		125 /			
AIREDALE	"		205 /			
AJAX	Cruiser	40, 53	58, 63, 65, 90			
ALARM	Minesweeper		308, 308			
ALBATROSS	Seaplane Tender	412			413	
ALBERNIE	Corvette	356		357?/	357?/	
ALBRIGHTON	Destroyer	201, 209, 222, 231, 262	209?			
ALBURY	Minesweeper		302			
ALCANTARA	Armed Merchant Cruiser	394				
ALDENHAM	Destroyer			268 /		
ALECTO	Depot Ship		401			
ALGERINE	Minesweeper				307 /	
AMAZON	Destroyer	199				
AMBUSCADE	"	138				
ANDANIA	Armed Merchant Cruiser				393 /	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
ANEMONE	Corvette		348			
ANTARES	Minesweeper			327		
ANTELOPE	Destroyer					151
ANTHONY	"		134, 159, 166			
ARBUTUS	Corvette				351 ≠	
ARCTURUS	Minesweeper			329		
ARDENT	Destroyer	137 ≠				
ARDROSSAN	Minesweeper			313		
ARETHUSA	Cruiser		70, 83, 102, 103		88	
ARGONAUT	"	104			89	
ARGUS	Aircraft Carrier		28			
ARIES	Minesweeper			330		
ARK ROYAL	Aircraft Carrier				25 ≠	
ARMIDALE	Corvette				353 ≠	
ARROW	Destroyer	123		174		
ARUNTA	"		269			
ASHANTI	"	255	124			
ASPHODEL	Corvette				356 ≠	
ASSINIBOINE	Destroyer	262				227
ASTER	Corvette		349			
ASTURIAS	Armed Merchant Cruiser				399	
ATHABASKAN	Destroyer	255	238		255 ≠	
ATHERSTONE	"		147			
AUCKLAND	Sloop		333, 339 ≠			
AUDACITY	Aircraft Carrier				26 ≠	
AURICULA	Corvette			352 ≠		
AURORA	Cruiser	87, 104	37, 45, 98	70		
AUSTRALIA	"	52	105, 105, 106, 106, 107			
AVENGER	Aircraft Carrier				28 ≠	
AVONVALE	Destroyer		193		227	
AYLMER	Frigate					290

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
BADSWORTH	Destroyer			206, 231		
BARHAM	Battleship	7	12		2, 14 ≠	
BASILISK	Destroyer		135 ≠			
BEAGLE	"	198	134, 138, 140, 141, 146			
BEAUFORT	"		195			
BEDOUIN	"	119, 204			204 ≠	
BELFAST	Cruiser			38		
BELMONT	Destroyer				187 ≠	
BELVOIR	"		244			
BENGAL	Minesweeper	307				
BERKELEY	Destroyer		209 ≠	154		
BERWICK	Cruiser	54, 56	43			
BEVERLEY	Destroyer				229 ≠	
BICESTER	"		247			
BICKERTON	Frigate				283 ≠	
BIDEFORD	Sloop		334, 343			
BIRMINGHAM	Cruiser		83		98	
BITTERN	Sloop		334 ≠			
BLACKPOOL	Minesweeper	300, 318				
BLACK SWAN	Sloop		333, 339	336		
BLACKWOOD	Frigate				281 ≠	
BLANCHE	Destroyer			115 ≠		
BLANKNEY	"		207			
BLEAN	"				222 ≠	
BLEASDALE	"	209 ?	209 ?	212		
BLENCATHRA	"	191	207		261	
BLUEBELL	Corvette				359 ≠	
BLYTH	Minesweeper		306	316		
BOADICEA	Destroyer	216	137		257 ≠	
BONAVENTURE	Cruiser	56	58		59 ≠	
BOREAS	Destroyer		141, 156			
BOSTON	Minesweeper		311			
BRAMBLE	"	300, 308 ≠	300			
BRAMHAM	Destroyer		218			
BRAZEN	"		141 ≠			
BRIDPORT	Minesweeper	318				
BRILLIANT	Destroyer		142			
BRITOMART	Minesweeper		300, 303			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
BROADWATER	Destroyer				180 ≠	
BROADWAY	"	166				
BROCKLESBY	"	209, 221				
BROKE	"	216 ≠				
BULLDOG	"	199	137, 145			
BULLEN	Frigate				287 ≠	
CACHALOT	Submarine					371 ≠
CADMUS	Minesweeper		311, 313			308
CAIRO	Cruiser	83	45, 46		85 ≠	
CALCUTTA	"		47, 67 ≠			
CALIFORNIA	Armed Merchant Cruiser		398			
CALPE	Destroyer		209			
CALYPSO	Cruiser				47 ≠	
CAMERON	Destroyer		153			
CANBERRA	Cruiser	84 ≠				
CAPEL	Frigate				288 ≠	
CAPETOWN	Cruiser				60	
CARINTHIA	Armed Merchant Cruiser				393	
CARLISLE	Cruiser		64, 96			
CARNARVON CASTLE	Armed Merchant Cruiser	397			337 ≠	
CASSANDRA	Destroyer				268	
CASTLETON	"		156			
CATO	Minesweeper				319 ≠	
CATTISTOCK	Destroyer	263	152, 158			
CENTURION	Demilitarised Battleship		406			
CHAMOIS	Minesweeper			320		
CHANTICLEER	Sloop				344	
CHARLOTTETOWN	Corvette				352 ≠	
CHARYBDIS	Cruiser				97 ≠	
CHEBOGUE	Frigate				284	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
CHESHIRE	Armed Merchant Cruiser				395, 399	
CICALA	River Gunboat	404, 404				
CIRCE	Minesweeper			315		
CLACTON	"			314 ≠		
CLAYOQUOT	"				325 ≠	
CLEOPATRA	Cruiser	75	72, 86		92	
CLEVELAND	Destroyer		241			
CLINTON	Minesweeper			324		
CODRINGTON	Destroyer		143			
COMORIN	Armed Merchant Cruiser		398 ≠			
CORFIELD	Mine Destructor Ship		402, 403 ≠			
CORNWALL	Cruiser	61	79 ≠			
CORNWALLIS	Sloop				340	
COSBY	Frigate				291	
COSSACK	Destroyer	122, 150, 168		157	181 ≠	
COTSWOLD	"			198		
COURAGEOUS	Aircraft Carrier				21 ≠	
COVENTRY	Cruiser		41, 46, 62, 87 ≠		55	
COWDRAY	Destroyer		215			
CRICKET	River Gunboat		402			
CROCUS	Corvette					352
CROMARTY	Minesweeper			312 ≠		
CROMER	"			307 ≠		
CUCKMERE	Frigate				278	
CULVER	Ex U.S. Cutter				405 ≠	
CUMBERLAND	Cruiser	52				
CURACOA	"		45			
CURLEW	"		46 ≠			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
DAINTY	Destroyer		157 ≠			
DAKINS	Frigate			287		
DARING	Destroyer				117 ≠	
DECOY	"		152, 156, 170, 176, 180			
DEFENDER	"		176 ≠			
DELHI	Cruiser		89	108		
DELIGHT	Destroyer		143 ≠			
DELORAINE	Minesweeper		303			
DENBIGH CASTLE	Corvette				358 ≠	
DERWENT	Destroyer				229	
DEVONSHIRE	Cruiser		43			
DIADEM	"	107				
DIAMOND	Destroyer		138, 161 ≠			
DIANTHUS	Corvette					352
DIDO	Cruiser		67			
DORSETSHIRE	"		78 ≠			
DRAGON	"	51				
DRAGONFLY	River Gunboat		405 ≠			
DUFF	Frigate			286		
DUKE OF YORK	Battleship	19				
DULVERTON	Destroyer		245 ≠			
DUNDALK	Minesweeper			298 ≠		
DUNDEE	Sloop				335 ≠	
DUNEDIN	Cruiser				69 ≠	
DUNOON	Minesweeper			295 ≠		
DUNVEGAN CASTLE	Armed Merchant Cruiser				394 ≠	
DURBAN	Cruiser		72			
EAGLE	Aircraft Carrier				26 ≠	
EASTON	Destroyer					237
ECLIPSE	"	195	119	244 ≠		
EDINBURGH	Cruiser		37		80 ≠	
EGRET	Sloop		336, 344 ≠			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
EKINS	Frigate			292		
ELECTRA	Destroyer	190 ≠				
ELGIN	Minesweeper			298, 316		
EMERALD	Cruiser	101				
ENCHANTRESS	Sloop					342
ENCOUNTER	Destroyer	190 ≠	162, 163, 166			
ENDEAVOUR	Survey Ship		405			
ENTERPRISE	Cruiser	100				
EREBUS	Monitor	112, 113				
ERICA	Corvette			354 ≠		
ERIDGE	Destroyer				210	
ERNE	Sloop		338			
ESCORT	Destroyer				139 ≠	
ESK	"		136, 145	146 ≠		
ESKIMO	"	259	235		121	
ESPERANCE BAY	Armed Merchant Cruiser		393			
ESQUIMALT	Minesweeper				328 ≠	
EXETER	Cruiser	39, 73, 74	73		74	
EXMOOR	"				157 ≠	
EXMOUTH	"				116 ≠	
EXPRESS	Destroyer		135	146		
FAME	Destroyer	128	130, 138, 139			213
FANTOME	Minesweeper			310		
FAREHAM	"		304			
FARNDALE	Destroyer	264	187			
FEARLESS	"				177 ≠	
FELIXSTOWE	Minesweeper			314 ≠		
FERMOY	"		301, 301			
FERNIE	Destroyer	191, 209				
FIJI	Cruiser		63 ≠		49	
FIREDRAKE	Destroyer		130, 138, 177		223 ≠	
FITZROY	Minesweeper			299, 304 ≠		
FLAMINGO	Sloop		339, 340			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
FLEETWOOD	Sloop		333			
FLEUR DE LYS	Corvette				350 ≠	
FORESIGHT	Destroyer	148, 200	154		208 ≠	
FORESTER	"	121, 201, 260	160			
FORFAR	Armed Merchant Cruiser				397 ≠	
FORMIDABLE	Aircraft Carrier		24, 34, 36			
FORTUNE	Destroyer		165			
FOXGLOVE	Sloop		334			
FRANKLIN	Survey Ship		401, 402, 402			
FRIENDSHIP	Minesweeper			318		
FROBISHER	Cruiser				104	
FROLIC	Minesweeper			327		
FURIOUS	Aircraft Carrier		21, 23, 24			
FURY	Destroyer			258		
GALATEA	Cruiser			48, 49	69 ≠	
GALLANT	Destroyer		133, 196 ≠	155		
GANNET	River Gunboat		401			
GARTH	Destroyer	209	177, 209			
GIPSY	"			115 ≠		
GLADIOLUS	Corvette				351 ≠	
GLAISDALE	Destroyer	234				
GLASGOW	Cruiser	99, 103	42		55	
GLEANER	Minesweeper			321		
GLORIOUS	Aircraft Carrier	21 ≠				
GLOUCESTER	Cruiser		48, 57, 61, 65 ≠			
GLOWWORM	Destroyer	117				
GLOXINIA	Corvette			349		
GNAT	River Gunboat				403	
GOATHLAND	Destroyer	231		260		
GOODALL	Frigate				293 ≠	
GOODSON	"				281	
GORGON	Minesweeper			320		

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
GOSSAMER	Minesweeper		305 ≠			
GOULD	Frigate				279 ≠	
GRAFTON	Destroyer				132 ≠	
GRAMPUS	Submarine					364 ≠
GRASSHOPPER	River Gunboat		405			
GRENADE	Destroyer		132 ≠			
GRENVILLE (1)	"			116 ≠		
GRENVILLE (2)	"	242				
GREYHOUND	"	131	123, 133, 161 167 ≠			
GRIFFIN	"		140, 160			
GRIMSBY	Sloop		338 ≠			
GROVE	Destroyer				203 ≠	
GUILLEMOT	Corvette	358	347			
GURKHA (1)	Destroyer		117 ≠			
GURKHA (2)	"				186 ≠	
GUYSBOROUGH	Minesweeper				328 ≠	
HAIDA	Destroyer	255, 261				
HALCYON	Minesweeper			298		
HALSTEAD	Frigate				280	
HAMBLEDON	Destroyer			149	217	
HARDY (1)	"	118				
HARDY (2)	"				252 ≠	
HARRIER	Minesweeper		296			
HARTLAND	Ex U.S. Cutter	407 ≠				
HARVESTER	Destroyer				228 ≠	228 ≠
HASTY	"				205 ≠	
HAVANT	"		135 ≠			
HAVOCK	"	118, 193	140, 167, 193, 195			
HAYARD	Minesweeper			307		
HEBE	"	305	297	305, 313 ≠		
HECLA	Destroyer Depot Ship			406	408 ≠	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
HECTOR	Armed Merchant Cruiser		398 ≠			
HEREWARD	Destroyer		170 ≠			
HERMES	Aircraft Carrier		26 ≠			
HERMIONE	Cruiser				84 ≠	68
HERO	Destroyer		168, 181			
HESPERUS	"		126			185, 224
HEYTHROP	"				192 ≠	
HOBART	Cruiser		73, 73		92	
HOLCOMBE	Destroyer				248 ≠	
HOLDERNESS	"			148, 176, 248		
HOLLYHOCK	Corvette		352 ≠			
HONEYSUCKLE	Corvette			349		
HOOD	Battleship	4, 10 ≠				
HOSTILE	Destroyer	118		145 ≠		
HOTSPUR	"	117				150
HUNTER	"	118 ≠			95 ≠	
HUNTLEY	Minesweeper		299 ≠			
HURON	Destroyer	255				
HURRICANE	"		164		250 ≠	
HURSLEY	"	243	210			
HURST CASTLE	Corvette				357 ≠	
HURWORTH	Destroyer			243 ≠		
HUSSAR	Minesweeper		296, 304	295		
HYACINTH	Corvette		350			
HYDRA	Minesweeper	311		325		
HYPERION	Destroyer			154 ≠		
HYTHE	Minesweeper				311 ≠	
H.31	Submarine			372 ≠		
H.49	"					367 ≠
H.50	"					366

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
IBIS	Sloop				341 ≠	
ILEX	Destroyer		168, 173, 233			
ILFRACOMBE	Minesweeper			317		
ILLUSTRIOUS	Aircraft Carrier		22, 23, 23, 33			
IMPERIAL	Destroyer		170	149		
INDEFATIGABLE	Aircraft Carrier		33			
INDOMITABLE	" "		27, 34		29	
INDUS	Sloop		340 ≠			
INGLEFIELD	Destroyer	148	254 ≠			
INTREPID	"		134, 242 ≠	151		
IRON DUKE	Battleship		1, 3			
ISIS	Destroyer		172, 185	259 ? ≠	259 ? ≠	
ITCHEN	Frigate				277 ≠	
ITHURIEL	Destroyer		207, 218			208
IVANHOE	"		136	147 ≠		
JACKAL	Destroyer	172	173, 202 ≠		182	
JAGUAR	"		133		194 ≠	
JANUS	"	171	203		251 ≠	
JAVELIN	"				153	
JERSEY	"			149, 163 ≠	116	
JERVIS	"		138, 251			
JERVIS BAY	Armed Merchant Cruiser	396 ≠				
JUNO	Destroyer		166 ≠			
JUPITER	"	186			190 ≠	
KANDAHAR	Destroyer		179	183 ≠		
KASHMIR	"		167 ≠			
KEITH	"		128, 129, 135 ≠			
KELLET	Minesweeper		296			
KELLY	Destroyer		167 ≠	116	125	
KELVIN	"		171			
KENT	Cruiser		60		50	
KENYA	"	71	86		85	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
KEPPEL	Destroyer					243
KIMBERLEY	"	150	123, 179		185	
KINGFISHER	Corvette		347, 347			
KINGSTON	Destroyer	192	167, 193, 196, 197 ≠			
KIPLING	"	183	123, 178, 183, 201 ≠			
KITE	Sloop				345 ≠	
KITTIWAKE	Corvette		353			
LADYBIRD	River Gunboat		402 ≠			
LAFOREY	Destroyer	232, 240	243		254 ≠	232
LAGAN	Frigate				277	
LAMERTON	Destroyer	182, 233				
LANCE	"		196, 196, 197 ≠			
LAPWING	Sloop				346 ≠	
LARK	Sloop				346	
LARNE	Minesweeper			323		
LATONA	Fast Minelayer		404 ≠			
LAURENTIC	Armed Merchant Cruiser				396 ≠	
LAWFORD	L.S.H.(Ex Frigate)				412 ≠	
LEANDER	Cruiser				91	
LEDA	Minesweeper		305		307 ≠	
LEDBURY	Destroyer		236			
LEGION	"		186, 193, 194 ≠			
LEVIS	Corvette				350 ≠	
LEWES	Destroyer		160, 161			
LIDDESDALE	"	264	175			
LIGHTNING	"				228 ≠	
LIMBOURNE	"	242			244 ≠	
LINNET	Minelayer				411	
LIVELY	Destroyer	192	202 ≠			
LIVERPOOL	Cruiser	47	48, 82		54, 82	
LOCUST	River Gunboat	407, 412		401		
LONDONDERRY	Sloop				342	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
LOOKOUT	Destroyer		243			
LOUISBURG	Corvette				354 ≠	
LOWESTOFT	Sloop			336		
LOYAL	Destroyer	239, 246, 253		265		
LOYALTY	Minesweeper				321 ≠	
LUCIA	Submarine Depot Ship		406			
LUPIN	Sloop		337			
L.27	Submarine					367
MAGIC	Minesweeper				318 ≠	
MAGOG	Frigate				284	
MAHRATTA	Destroyer				254 ≠	
MALAYA	Battleship		4		8	
MALCOLM	Destroyer	214	128			
MALLARD	Corvette		348			
MANCHESTER	Cruiser				68, 86	
MANNERS	Frigate				289	
MANXMAN	Fast Minelayer				409	
MAORI	Destroyer	154	124, 184, 188 ≠			
MARIGOLD	Corvette				353 ≠	
MARNE	Destroyer	210			217	
MARSHAL SOULT	Depot Ship (Ex Moniter)		109			
MARTIN	Destroyer		203		216 ≠	
MASHONA	"		169 ≠			
MATABELE	"				185 ≠	
MATANE	Frigate		282			
MATCHLESS	Destroyer			207		
MAURITIUS	Cruiser	107				
MEDWAY	Submarine Depot Ship				407 ≠	
MELBREAK	Destroyer	234, 262, 263				
MENDIP	"		239			
MIDDLETON	"	263, 263				

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
MOHAWK	Destroyer		115		160 ≠	
MONTROSE	"		142			
MOOLTAN	Armed Merchant Cruiser		394			
MOSQUITO	River Gunboat		401 ≠			
MOTOR TORPEDO BOATS						
MOTOR AND STEAM GUNBOATS						
MOTOR MINESWEEPERS						
MOUNSEY	Frigate			285		
MOURNE	Frigate				281 ≠	
MULGRAVE	Minesweeper			322		
NABOB	Aircraft Carrier				31	
NAIAD	Cruiser		60, 64, 71		75 ≠	
NAPIER	Destroyer		171			
NARBADA	Sloop		345			
NARWHAL	Submarine					365 ≠
NELSON	Battleship			2, 20	13	
NEPTUNE	Cruiser	48	47, 58, 58	69 ≠		
NESTOR	Destroyer		206 ≠			
NEWARK	"		163			
NEWCASTLE	Cruiser				83	
NEWFOUNDLAND	"				93	
NEW GLASGOW	Frigate					290
NIGERIA	Cruiser				85	
NITH	L.S.H.(Ex Frigate)		413			
NIZAM	Destroyer		170, 178			
NORFOLK	Cruiser	99	41, 65			
NUBIAN	Destroyer		124, 162, 168, 235, 236			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
OBDURATE	Destroyer	226			252	
OBEDIENT	"	224				
ODIN	Submarine	364 ≠			364 ≠	
OFFA	Destroyer		255			
OLYMPUS	Submarine		364, 365, 366, 371	376 ≠		
ONSLAUGHT	Destroyer	262				
ONSLOW	"	225	256		258	
ORCHIS	Corvette			357 ≠		
ORIBI	Destroyer					232
ORION	Cruiser		63, 66			
ORPHEUS	Submarine				364 ≠	
OSWALD	"					365 ≠
OTTAWA	Destroyer				211 ≠	
PAKENHAM	Destroyer	230 ≠				
PALADIN	"		271			253
PALOMARES	Aux. A. A. Ship		408	412		
PANDORA	Submarine		375 ≠			
PANGBOURNE	Minesweeper		296			
PANTHER	Destroyer		214, 242 ≠			
PARRAMATTA	Sloop				339 ≠	
PARTHIAN	Submarine			381 ≠		
PARTRIDGE	Destroyer	205			223 ≠	
PATHAN	Sloop			347 ≠		
PATHFINDER	Destroyer		271			
PATROCLUS	Armed Merchant Cruiser				396 ≠	
PEGASUS	Aircraft Carrier		24			
PELICAN	Sloop	340	333	337		
PELORUS	Minesweeper			319		
PENELOPE	Cruiser	91	42, 76, 77, 80, 95	69	101 ≠	
PENYLAN	Destroyer				219 ≠	
PENZANCE	Sloop				335 ≠	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
PERSEUS	Submarine			372 ≠		
PERSIAN	Minesweeper			317		
PERTH	Cruiser		58, 67		73 ≠	
PETARD	Destroyer		223, 233, 235			
PETEREL	River Gunboat	404 ≠				
PHOEBE	Cruiser				68, 87	
PHOENIX	Submarine					365 ≠
PICOTEE	Corvette				350 ≠	
PINK	Corvette			356		
PINTAIL	Corvette		348	350 ≠		
PIQUE	Minesweeper			318, 321		
PIRIE	"		309			
POLYANTHUS	Corvette				355 ≠	
POOLE	Minesweeper		311	304		
PORCUPINE	Destroyer				220	
PORPOISE	Submarine					376, 390 ≠
POZARICA	Aux.A.A.Ship				410 ≠	
PRIMULA	Corvette		352			
PRINCE OF WALES	Battleship	11	15		15 ≠	
PROMPT	Minesweeper			328		
PROTEA	"		303			
PROTECTOR	Net Layer		402		403	
PROTEUS	Submarine					373
PUCKERIDGE	Destroyer		182		238 ≠	
PUFFIN	Corvette					360
PUNJABI	Destroyer	120				
PYLADES	Minesweeper				319 ≠	
PYTCHLEY	Destroyer			175		
P.31	Submarine		373			
P.32	"		370	371 ≠		
P.33	"			371 ≠		370
P.34	"			375		376
P.36	"		374, 375 ≠			
P.38	"			374 ≠		
P.39	"		374, 374			
P.48	"					378 ≠
P.222	"					377 ≠
P.311	"			378 ≠		
P.615	"				379 ≠	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
QUAIL	Destroyer			246		
QUALITY	"	260				
QUEEN ELIZABETH	Battleship			16		
QUENTIN	Destroyer				219 ≠	
QUILLIAM	"	246, 260				
QUORN	"		160	178, 198	261 ≠	
RAINBOW	Submarine	366 ≠				
RAJPUTANA	Armed Merchant Cruiser				398 ≠	
RAMILLES	Battleship				18	
RAPID	Destroyer	272				
RATTLESNAKE	Minesweeper			317		
RAWALPINDI	Armed Merchant Cruiser	393 ≠				
REDMILL	Frigate				293	
REDOUBT	Destroyer					227
REGENT	Submarine					366, 368, 378 ≠
REGINA	Corvette				356 ≠	
REGULUS	Submarine		367 ? ≠			367 ≠
REGULUS	Minesweeper			326 ≠		
RENOWN	Battleship	3	5			
REPULSE	"		16		16 ≠	
RESOLUTION	"		4		6	
RETALICK	Frigate	283				
RHODODENDRON	Corvette			349		
RHYL	Minesweeper		312, 312			
RIPLEY	Destroyer		166			
ROBERTS	Monitor		110			
ROBIN	River Gunboat		404, 405			
ROCKWOOD	Destroyer		245			
RODNEY	Battleship		3, 18			
ROSS	Minesweeper		303			
ROTHESAY	"			303		

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
ROVER	Submarine		369		368 ?	368
ROYAL OAK	Battleship				1 ≠	
SABRE	Destroyer		134, 136			
SAFARI	Submarine					380
SAGUENAY	Destroyer				153	
SAHIB	Submarine					379 ≠
SALADIN	Destroyer		134			
SALMON	Submarine			365 ≠		
SALAMANDER	Minesweeper		297			
SALOPIAN	Armed Merchant Cruiser				398 ≠	
SALTBURN	Minesweeper		298			
SALVIA	Corvette		349		351 ≠	
SAMPHIRE	Corvette				354 ≠	
SARACEN	Submarine					381, 381 ≠
SATYR	"	383				383, 387
SAUMAREZ	Destroyer	250, 262, 275				
SCIMITAR	"		144			
SCORPION	River Gunboat	405	405			
SCOTSTOUN	Armed Merchant Cruiser				393 ≠	
SCYLLA	Cruiser			102		
SCYTHIAN	Submarine	390				
SEAHORSE	"		361	362 ? ≠		362 ? ≠
SEAL	"			364		
SEALION	"		365			366, 364
SEAROVER	"					386
SELKIRK	Minesweeper		301, 302, 306			
SERAPH	Submarine					378
SHAKESPEARE	"	389	389			
SHARK	"					365 ≠
SHARPSHOOTER	Minesweeper					304
SHAWINIGAN	Corvette				357 ≠	
SHEFFIELD	Cruiser		37, 59	74		
SHELLDRAKE	Corvette				349	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
SHERWOOD	Destroyer		158			
SIBYL	Submarine	383				383
SICKLE	"			386 ≠		380
SIKH	Destroyer	211 ≠				
SIMOON	Submarine					382 ≠
SIRDAR	"	387				382 ≠
SIRIUS	Cruiser		95, 97			
SKATE	Destroyer		144			
SKIPJACK	Minesweeper		297 ≠			
SLINGER	Aircraft Carrier			30		
SNAPDRAGON	Corvette		353 ≠			
SNAPPER	Submarine			368 ≠		
SOMALI	Destroyer		127		212 ≠	
SOUTHAMPTON	Cruiser		37, 42, 45, 46, 47, 56, 57 ≠			
SOUTHDOWN	Destroyer	254	163			
SOUTHWOLD	"		193	193 ≠		
SPARTAN	Cruiser		100 ≠			
SPEARFISH	Submarine				365 ≠	361
SPEEDY	Minesweeper	303		309		
SPHINX	"		295 ≠			
SPIKENARD	Corvette				351 ≠	
SPIRIT	Submarine	389				
SPITEFUL	"		387			
SPLENDID	"	379 ≠				379 ≠
SPORTSMAN	"					386
SQUIRREL	Minesweeper			330 ≠		
ST. CROIX	Destroyer				241 ≠	
ST. LAURENT	"		156, 261			
STANLEY	"				183 ≠	
STARFISH	Submarine					362 ≠
STARLING	Sloop					343
STERLET	Submarine					363 ≠
STEVENSTONE	Destroyer			267		
STOKE	Minesweeper		300, 301 ≠			
STONEHENGE	Submarine					385 ≠
STORK	Sloop				335, 341	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
STORM	Submarine	388				387
STORMCLOUD	Minesweeper			316		
STRATAGEM	Submarine					389 ≠
STRONGBOW	"					388, 390
STRONGHOLD	Destroyer	190 ≠			190 ≠	
STUART	"		157			
STUBBORN	Submarine					384
SUBTLE	"					390
SUFFOLK	Cruiser		44			
SUNFISH	Submarine		372			
SUNFLOWER	Corvette					355
SUSSEX	Cruiser		51, 108			
SUTTON	Minesweeper			295		
SWAN	Sloop		340			
SWIFT	Destroyer			259 ≠		
SWORDFISH	Submarine					367 ≠
SYDNEY	Cruiser	48, 68 ≠			68 ≠	
SYRTIS	Submarine			385 ≠		
TACTICIAN	Submarine	385				380
TAKU	"			385		364
TALISMAN	"					376 ≠
TALLYBONT	Destroyer	257				
TALLY HO	Submarine					384
TANATSIDE	Destroyer	242, 255				
TANTALUS	Submarine		388			388
TARPON	"					363 ≠
TARTAR	Destroyer	257				
TAURUS	Submarine		383			381, 382
TEDWORTH	Minesweeper		297			
TELEMACHUS	Submarine					387
TEME	Frigate				291	
TEMPEST	Submarine					373 ≠
TEMPLAR	"					386
TENEDOS	Destroyer		196 ≠			
TERN	River Gunboat		404			

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
TERRAPIN	Submarine					391
TENOR	Monitor		109, 109 ≠			
TETRARCH	Submarine					372 ≠
THAMES	"			366 ≠		
THANE	Aircraft Carrier				32	
THANET	Destroyer	187 ≠				
THISTLE	Submarine				363 ≠	
THORN	"			376 ≠		
THRACIAN	Destroyer	183 ≠	183 ≠			
THRASHER	Submarine					377
THUNDERBOLT	"					367, 378 ≠
TIGRIS	"					378 ≠
TIPTOE	"					391
TORBAY	"		379			374, 382, 383
TRANSYLVANIA	Armed Merchant Cruiser				394 ≠	
TRAVELLER	Submarine					377 ≠
TRENTONIAN	Corvette				359 ≠	
TRIAD	Submarine					367 ≠
TRIBUNE	"					377
TRINIDAD	Cruiser	77	81 ≠			
TRITON	Submarine			367 ? ≠		367 ≠
TRIUMPH	"	370		361, 373 ≠		
TROLLOPE	Frigate				282	
TROOPER	Submarine			382 ≠		
TRUANT	"				363	363
TRUCULENT	"					387
TUDOR	"		389			
TURBULENT	"			378 ≠		
TWEED	Frigate				278 ≠	277
TYNDALE	Destroyer		158, 236		249 ≠	
TYNWALD	Aux. A. A. Ship			409 ≠		
UGANDA	Cruiser		94			
ULSTER	Destroyer	242	274			
ULTOR	Submarine					385

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
ULTIMATUM	Submarine					386
UNBEATEN	"	373	375			
UNBROKEN	"					377
UNDAUNTED	"					369 ≠
UNDINE	"					362 ≠
UNION	"			370 ? ≠		370 ? ≠
UNIQUE	"		371			377 ≠
UNISON	"	380				
UNRIVALLED	"					382
UNRULY	"					383
UNSEEN	"					382
UNSHAKEN	"					380
UNSPARING	"	382				384
UNSWERVING	"					385
UNTIRING	"					386
UPHOLDER	"					376 ≠
UPRIGHT	"		374			
UPSTART	"					387
URGE	"			376 ≠		
URSULA	"					378
USK	"			369 ≠		
USURPER	"			381 ≠		
UTMOST	"					377
VALENTINE	Destroyer		127 ≠			
VALIANT	Battleship		7, 9	17		
VALLEYFIELD	Frigate				279 ≠	
VAMPIRE	Destroyer		197 ≠			
VANESSA	"		140, 174			223
VANOC	"					159
VANSITTART	"		128			
VEGA	"			152		
VENDETTA	"		176			
VENETIA	"	129		150 ≠		
VENOMOUS	"	130	130	155		
VENTURER	Submarine					384

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
VERSATILE	Destroyer		126			
VERULAM	"	265				
VERVAIN	Corvette				359 ≠	
VESPER	Destroyer	222				
VESTAL	Minesweeper		331 ≠	321		
VETERAN	Destroyer			148	212 ≠	
VICTORIOUS	Aircraft Carrier		26, 35			
VIENNA	Depot Ship		411			
VILLE DE QUEBEC	Corvette					354
VIMIERA	Destroyer	156	131	184 ≠		
VIMY	"	129	129			
VIRAGO	"		275			
VISCOUNT	"		165			213
VIVACIOUS	"	135	136, 164, 180			
VIVID	Submarine					388
VOLAGE	Destroyer	273				
VOLTAIRE	Armed Merchant Cruiser	398 ≠				
VOLUNTEER	Destroyer		163			
VORTIGERN	"				192 ≠	
VOX	Submarine					386, 387
VOYAGER	Destroyer		212 ≠			
WAKEFUL	Destroyer				132 ≠	
WALKER	"		131, 138			
WALNEY	Ex U.S. Cutter	407 ≠				
WALPOLE	Destroyer		143	151, 270		
WARSPITE	Battleship		4, 5, 7, 8, 12, 19	20		
WARWICK	Destroyer			155	253 ≠	
WATCHMAN	"		145			
WATERHEN	"		175 ≠			
WELSHMAN	Fast Minelayer		406		410 ≠	
WENSLEYDALE	Destroyer	233, 234, 242				
WESSEX	"		130 ≠			
WESTCOTT	"					187

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
WEYBURN	Corvette			355 ≠		
WHADDON	Destroyer		164			
WHIRLWIND	"		131		139 ≠	
WHITAKER	Frigate			286 ? ≠	286 ? ≠	
WHITLEY	Destroyer		128 ≠			
WHITSHED	"	221	125, 130	144, 191		
WIDNES	Minesweeper		302, 302 ≠			
WILD SWAN	Destroyer		126, 129, 161, 207 ≠			
WILTON	"	267	217			
WINCHELSEA	"		241, 247			
WINCHESTER	"		127, 151	151		
WINDSOR	"	191	132, 144	154		
WITHERINGTON	"		124, 159			
WIVERN	"		126			
WOLFE	Armed Merchant Cruiser		395			
WOLFHOUND	Destroyer		131, 179			
WOLVERINE	"		202			208
WOODPECKER	Sloop				345 ≠	
WOOLWICH	Destroyer Depot Ship		403			
WORCESTER	Destroyer	189, 221	136	249		
WORCESTERSHIRE	Armed Merchant Cruiser				397	
WREN	Destroyer		124, 143 ≠			
WRESTLER	"			256		
WRYNECK	"		161 ≠			
YARRA	Sloop	340 ≠				
YORK	Cruiser		61, 61, 62, 62, 62, 62, 63 ≠		59	

Ship	Type	Attack				
		1. Shell	2. Bomb	3. Mine	4. Torpedo	5. Various
ZAMBESI	Destroyer	266				
ZETLAND	"	264	247			
ZINNIA	Corvette				350 ≠	
ZULU	Destroyer	168, 211	184, 211 ≠	149		

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
MALAYA 15/17th May, 1944	24 No. Direct Hits with British Shell	Nil	MALAYA, while on exercises, received 24 shell hits on the port side. Three hits were at main deck level, one right forward which made a hole 8 ft. by 8 ft. in the hull plating, another just forward of the forward oil fuel tanks, and a third abreast the machinery spaces. The last two did not pentrate the hull and did little damage. A fourth shell struck the armoured shield of P.4 - 6 inch mounting, badly distorted it and wrecked the training gear. The remaining 20 hits were on the side armour and had little effect. Fighting Efficiency - Slightly impaired. One 6 inch mounting was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
EAGLE 14th March, 1940	Explosion of one 250 lb. Bomb	7 weeks	EAGLE was in the vicinity of the Nicobar Islands and proceeding towards Singapore when a bomb exploded whilst ready use bombs were being fused and stowed in the bomb room. Serious damage occurred to the decks and bulkheads in the vicinity of the bomb rooms and extended to the after bulkhead of 'D' boiler room, which was pierced by splinters and to the forward bulkhead of the starboard wing engine room which was heavily buckled. Smoke fumes and flash entered the hangar and mess decks and as a precautionary measure, all bomb rooms, the fireworks and the 4 inch magazine were flooded and the hangar sprayed. Apart from one aircraft that had a burnt wing, only minor damage was caused to the planes in the hangar, chiefly as a result of spraying. Fighting Efficiency - Impaired. Aircraft flying off was temporarily suspended after the explosion. Aircraft could only be operated with reduced efficiency due to the loss of the bomb rooms.
ARK ROYAL 22nd March, 1941	One Depth Charge from crashed aircraft	Nil	ARK ROYAL was operating in the Mediterranean when one of her Swordfish aircraft, which carried a depth charge, crashed ahead of the ship when taking off. The depth charge exploded and hull plating forward for about 70 ft. between the hold and platform decks was dished between framing. Slight leaks occurred. Fighting Efficiency - Not impaired. The ship was still seaworthy and repairs were not effected immediately.
VICTORIOUS 25th Feb., 1943	A British Aircraft Crash Landed carrying Two U.S. Mk. XVII Depth Bombs (325 lb.) which failed to Detonate	1 month	VICTORIOUS was damaged when a Tarpon aircraft carrying two U.S. depth bombs crash landed onto the flight deck. The aircraft came to rest near the edge of the flight deck and the propellor which was still revolving, severed a petrol fuelling hose close by. The escape of petrol started a fire which engulfed the aircraft, and spread to the crane and boat deck below, but in neither case did the fire get out of control. Neither of the bombs carried by the aircraft detonated and both were recovered when the fires had been extinguished. One was found intact and the other in pieces, having probably been broken up when the plane crashed. With the exception of the boats and crane the damage to the ship was slight. Fighting Efficiency - Not impaired.

AIRCRAFT CARRIERS - 1943/45

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BITER 16th Nov., 1943 D.N.C.4B/R268	One British Mk. XXIV Contact Mine (100 lbs. Torpex) from crashed aircraft	1 month	BITER was operating in the mid-Atlantic when one of her own aircraft made a crash landing in the sea just astern of the ship. The aircraft was carrying a contact mine which probably detonated on the rudder. The bottom after corner of the rudder was demolished and the rest of its structure seriously damaged. Hull plating below the waterline at the stern suffered minor damage. Fighting Efficiency - Slightly impaired. The steering of the ship was slightly affected by the damaged rudder.
VINDEX 24th March, 1944	A British Aircraft which Crash Landed carrying two Depth Charges	3 weeks	VINDEX was damaged when a Swordfish aircraft, carrying two depth charges, crash landed on her when returning from patrol and came to rest about 8 ft. from the round down of the flight deck. Petrol which leaked from the carburetter was ignited and the aircraft was set on fire. Efforts were made to extinguish the fire but before it could be got under control the two depth charges were burning fiercely and one finally exploded. A hole 8 ft. by 4 ft. was blown in the flight deck but otherwise damage was slight. Fighting Efficiency - Temporarily impaired. Temporary repairs to the flight deck were necessary before aircraft could be efficiently operated.
ILLUSTRIOUS 29th Jan., 1945	Two Direct Hits with 5.25 inch direct action fuzed British Shell	Nil	ILLUSTRIOUS, while operating with the British Pacific Fleet, was hit by two shells fired from accompanying ships when the force was being attacked by Japanese aircraft. One shell hit the ship's side abreast No.7 transmitter room at upper gallery deck level. Damage to the hull was not serious but splinter damage was extensive. The type 87M transmitter was wrecked and the starboard S.1. pom-pom, director and forward Wa/T set were temporarily out of action due to severed cables. Another Shell hit the port wing bridge at compass platform level. This portion of the bridge, and one twin oerlikon was wrecked. Splinters extensively damaged the type 285 radar aerial, the heightfinder and one director. Two aircraft on the flight deck had to be jettisoned due to severe splinter damage one being set on fire. Fighting Efficiency - Impaired. The efficiency of the fighter direction system was impaired and the aircraft complement was reduced by two planes. One twin oerlikon was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SHEFFIELD 17th March, 1941 D.N.C.4B/R70	Two Non-Contact British Mines in 30 fathoms charge 500 lbs.	5 days temporary repairs including refit and damage received on 30.3.41 See Sheet 59	SHEFFIELD, whilst proceeding at 19 knots off the Island of Islay, Scotland, exploded two mines, one in each P.V. wire. The port and starboard hull plating and internal structure abreast the forward oil fuel tanks was strained and leaking. Fighting Efficiency - Slightly impaired. The contamination of the forward oil fuel tanks affected the endurance of the ship.
TRINIDAD 29th March, 1942	One Contact Torpedo fired from TRINIDAD	Indeterminate (See Sheet 77)	TRINIDAD, while in action against German Destroyers off North Russia, was damaged by one of her own torpedoes. The torpedo struck the ship on the port side abreast the bridge at platform deck level. The explosion blew a hole 45 ft. by 20 ft. in the port side and 10 ft. by 7 ft. in the starboard side. The platform deck was destroyed for 20 ft. inboard and the lower deck and side armour were displaced. The forward boiler room, main switchboard, No.2 low power room, No.1 transmitter room, forward H.A.C.P. and transmitting station were all flooded. An immediate 17 degrees list to port was corrected by counterflooding. A fire was started by the explosion in the forward mess decks and although never out of control was difficult to fight and could not finally be extinguished till 17 hours later. All power was eventually lost due to flooding. The port torpedo tubes were lost overboard. Fighting Efficiency - Seriously impaired. The forward boiler room and engine room, radar, forward H.A. director and all units in the flooded compartments were out of action. Main and secondary armament were temporarily out of action due to loss of power, but when this was restored the secondary armament was 50% efficient. After damage the ship was able to proceed at 8 to 11 knots but this was eventually reduced to 2 knots owing to contaminated feed water. Note:- From recovered fragments the torpedo was identified as the one that had been fired from 'A' tube two minutes earlier.

CRUISERS - 1942/45

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SHEFFIELD 8th Nov., 1942	Premature explosion of one 6 inch Shell	Nil	SHEFFIELD's forecastle was damaged during an engagement with enemy torpedo bombers, by the premature functioning of one of her own shells, probably fired from the centre gun of 'A' turret. The forecastle deck, cable holders, cables and capstan engine flat were damaged by splinters. Fighting Efficiency - Not impaired.
FROBISHER 18th July, 1944	One Direct Hit and Two Near Misses with small direct action fuzed Bombs possibly British or American	Nil	FROBISHER, while operating off the Normandy beaches, was attacked by a small aircraft, possibly Allied, while a formation of 12 Liberators was passing overhead. Eight small bombs were dropped, but only three did damage. One penetrated the blast screen on the port side of No.2 gun deck and detonated before reaching the forecastle deck and splinters from two near misses struck the stem post and hull plating forward. Apart from damage to one oerlikon the damage was only superficial. Fighting Efficiency - Not impaired.
NEWFOUNDLAND 2nd Feb., 1945	Burst Torpedo Air Vessel	1 month	NEWFOUNDLAND was at anchor off Alexandria when an explosion occurred in her port torpedo tube space and it was discovered that an air vessel of the torpedo in 'B' tube had burst. The torpedo space was badly damaged and the 4 inch gun deck above was forced up and fractured. The support of P.1 - 4 inch mounting was badly damaged by the projectile effect of 'B' torpedo and the deck in the vicinity of P.2 mounting was distorted. 'B' tube of the mounting was extensively damaged but 'A' and 'C' tubes were only damaged at the lip end. The mounting was probably displaced. Cables in the vicinity supplying H.P., radar, torpedo, and 4 inch fire control were crushed or severed. Fighting Efficiency - Impaired. The port torpedo tubes and P.1 - 4 inch mounting were out of action. P.2 mounting could probably only have been fired in an emergency.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KHARTOUM 23rd June, 1940	Burst Torpedo Air Vessel	Sunk	KHARTOUM was on patrol in the Red Sea off Perim Harbour when the air vessel of the starboard wing torpedo in the after mounting exploded. The explosion jammed the after body of the torpedo in the rear end of the tube, burst the tube open and discharged the warhead aft through the after galley and superstructure where it finally came to rest against the starboard winch of the minesweeping gear. The warhead did not detonate. Fire broke out aft and, fed by oil from a fractured oil pipe in the galley, was soon out of control. Attempts to beach the ship near Perim Harbour failed when all power was lost due to accidental shutting down of boilers. It was not possible to flood the after magazine group, due to the intense heat in the vicinity and the after magazine and warhead room finally exploded. The stern was wrecked and KHARTOUM settled on an even keel with the forward guns and bridge awash.
MENDIP 24th Oct., 1940	Own Depth Charges	$3\frac{1}{2}$ months	MENDIP was on A/S exercises when there was an accidental explosion of one or more depth charges stowed on the upper deck aft. The stern structure above the lower deck was wrecked over a length of 40 ft. and the ship flooded over this area. The steering gear was blown away but no damage was apparent to shafts, propellers, or main engines. The after 4 inch mounting was seriously damaged. Fighting Efficiency - Seriously impaired. The ship could probably have proceeded under her own power at slow speed. The after 4 inch gun, and all depth charge equipment was out of action.
ARROW 16th Nov., 1940	Depth Charges	2 months	ARROW was operating off the Clyde, when her machinery was damaged by the explosion of depth charges following the sinking of the trawler ARSENAL with which ARROW had been in collision. Details of the damage are not available. Fighting Efficiency - Seriously impaired. Ship was put out of action operationally.

DESTROYERS - 1941

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
IMPERIAL 29th May, 1941	One Contact Torpedo fired by own forces	Sunk	IMPERIAL, after embarking army personnel, left Heraklion Harbour and proceeded to sea at 29 knots. The steering gear suddenly failed and the ship slewed violently to port and to starboard. The tiller flat steering position was out of action and it was not possible to steer by main engines as the rudder could not be centred. Examination revealed an extensive loss of oil in the hydraulic system but the position of the leak could not be traced. As the ship was unmanageable, with the rudder swinging freely, it was decided for tactical reasons to abandon and sink her by a torpedo fired from a ship in company. Note: IMPERIAL was dive bombed the previous day (28.5.41) and five near misses exploded near the stern. Superficial damage was caused by splinters but examination disclosed no serious damage within the ship (See Sheet 170)
ACHATES 25th July, 1941 D.N.C.4B/R77	One Contact British Mine in 90 fathoms Charge 320 lbs. Amatol	$8\frac{1}{2}$ months including refit	ACHATES, while operating in the North Atlantic, at 20 knots, struck a mine under the fore end. 70 ft. of the fore end, including 'X' gun, was destroyed and 25 ft. of the structure abaft this was severely damaged. A whipping buckle girthed the ship abreast the after oil fuel tanks. The fore end flooded to the fore bulkhead of the forward boiler room and the after oil fuel tanks were contaminated. Fighting Efficiency - Seriously impaired. After two hours steaming astern at 8 knots, to clear the minefield, ACHATES was immobilised by the contamination of the after oil fuel tanks and had to be taken in tow. 'A' gun was missing and 'B' gun was masked by the damaged blast screen but all remaining guns could have been fired in local control.
NESTOR (H.M.A.S.) 11th Sept., 1941	Own Depth Charge	1 week	NESTOR, while operating in the South Atlantic, was slightly damaged by the explosion of one of her own depth charges. Both sliding feet of the port H.P. turbine were fractured. Fighting Efficiency - Impaired. Speed was reduced to 18 knots.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CASTLETON 19th Nov., 1941	Explosion of 25 lb. Amatol Scuttling Charge	5 months	CASTLETON was escorting a convoy off the north west of Scotland, when a scuttling charge exploded in the lower sound room of her asdic compartment. A hole about 4 ft. diameter was blown in the port side plating at keel level abreast the asdic dome. On the starboard side the plating was perforated by splinters. The upper and lower sound rooms were wrecked and flooded. Slight damage to structure of forward oil fuel tanks caused contamination with salt water. Fighting Efficiency - Not seriously impaired. A collision mat was rigged over the damaged bow and the ship continued with the convoy at 15 knots. The asdic equipment was wrecked and out of action.
GARTH 19th Nov., 1941	Six Direct Hits with 40 mm. British Shell	3 weeks	GARTH, while escorting a convoy in the North Sea, was accidentally fired on by an accompanying destroyer as the result of mistaken identity when searching for suspected E boats. The ship received six direct hits on the port side from pom-pom shell. One hit the forward magazine below the waterline and penetrated several 4 inch charges which were ignited and started a cordite fire. The magazine was flooded, partly as a result of the shell entry hole being below water, and partly by deliberate flooding to extinguish the fire. A second hit on the port oerlikon gun caused slight mechanical damage. A third hit the forward boiler room below the waterline. The boiler room was flooded and all steam and electrical power failed due to the contamination of feed water to the after boiler room. A fourth burst in the engine room near the port turbo generator and fractured its exhaust steam pipe. High and low-power electric cables were also cut. A fifth burst near the escape hatch to the engine and gearing room and severed telephone cables. A sixth hit the steering compartment but did no appreciable damage. Fighting Efficiency - Seriously impaired. GARTH was immobilised and had to be towed back to port.

DESTROYERS - 1943

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WIVERN 22nd Feb., 1943	Explosion of probably 20 Depth Charges	18 months	WIVERN, while escorting a convoy in the Straits of Gibraltar, went to the assistance of the Canadian Corvette WEYBURN which had been seriously damaged and later sank as the result of an underwater explosion. At the time of sinking WIVERN was within 200 ft. of the wreck and as the bow disappeared a large explosion occurred, followed a second or two later by another, probably as the result of the countermining of up to 20 depth charges on the stern of WEYBURN. The shock effect on WIVERN was severe and the bow structure forward of the boiler rooms was generally buckled and distorted. At first only minor flooding occurred at the fore end, but, when the ship was later taken in tow, the rate of flooding increased until all compartments below the lower deck and forward of the boiler rooms were flooded. A list to port developed and reached a maximum of 12 degrees. Shock damage to main and auxiliary machinery was extensive. All turbine feet were fractured, the boilers were unseated and auxiliary machinery severely damaged. All steam pressure was lost in about 20 minutes. The asdic, radar and W/T equipment were wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised as the result of extensive shock damage to machinery. The asdics, radar and W/T sets, were out of action.
ASSINIBOINE (H.M.C.S.) 2nd March, 1943	Own Depth Charges	4½ months to repair ramming damage and bent shafts. See Sheet 227.	ASSINIBOINE, while operating in the North Atlantic, rammed a submarine and during the attack six depth charges were dropped. Owing to the close proximity of the explosions there was a complete failure of high and low power electrical supply to the gyro compass, type 271, Radar, A/S sets and steering motors, which were all temporarily out of action until power was later restored. Fighting Efficiency - Seriously impaired temporarily.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BICESTER 9th May, 1943 D.N.C.4B/R.244	One Direct Hit and Three Near Miss 500 lb. American Bombs	3 months	BICESTER, while patrolling off the north African Coast at 18 knots, was attacked by American fighters and received one direct hit and three near misses with bombs. The direct hit perforated the ship's starboard side abreast the after oil fuel tanks, the lower deck, passed through the two starboard fuel tanks, perforated the centre line bulkhead and finally came to rest in the port after tank without detonating. The after oil fuel tanks and mess decks flooded to the waterline and the ship heeled 8 degrees to starboard, reaching a maximum of 15 degrees when adverse weather was encountered. Slight flooding occurred in the after magazine and in the gearing room through leaking shaft glands. Three near misses fell, one abreast the forward magazine, another to the starboard abreast the pom-pom platform, and a third abreast the stern, causing slight damage to structure. The rangefinder, A/S dome, W/T and radar equipment was damaged by shock. Fighting Efficiency - Seriously impaired. The ship was difficult to control at high speeds due to the flooding and heel, and her endurance was reduced by the loss of the after oil fuel tanks. Radar sets were temporarily out of action and the rangefinder was damaged.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TUSCAN 14th May, 1943 D.N.C.4B/R239	One Contact British Mine in 27 fathoms Charge 150 lbs. Amatol	5½ months	TUSCAN was operating in the Bristol Channel at 14½ knots when an explosion occurred abreast the port side of the steering compartment. It blew a hole 22 ft. by 18 ft. in the port side plating and the plating on the starboard side was blown outboard. The structure abaft the cut up was severely damaged, the upper deck abaft 'Y' gun being blown 30 ft. upwards, and the lower deck badly buckled. The port 'A' bracket was fractured and its shaft bent downwards, the rudder was damaged and bent to starboard. The after magazine, after shell room, steering compartment, spirit room and after provision room flooded immediately and minor flooding, which could be controlled, occurred in the after crew space on the lower deck. Fires started by burning calcium floats in the steering compartment quickly burnt out. The port main engine was jammed, the starboard engine stiff to move and the steering gear seriously damaged. Electrical equipment and communications abaft 'Y' gun were destroyed. 'Y' gun support was damaged and the mounting stiff to train. The after depth charge equipment was wrecked. Fighting Efficiency - Seriously impaired. The ship was immobilised due to the port engine and steering gear being out of action. 'Y' gun and the after depth charge equipment were also out of action.
QUALITY 27th Aug., 1943	Burst Torpedo Air Vessel	4 days	QUALITY was operating in the South Atlantic when the air vessel of a torpedo burst in the tube of the mounting and the warhead was ejected. No details of damage are available. Effect on fighting efficiency - Not known.
ESCAPADE 20th Sept.,1943	Hedgehog Explosion	15 months	ESCAPADE was hunting a submarine off the north of Ireland when a number of hedgehogs exploded as a pattern was being fired from the mounting. The fore end of the bridge and wheelhouse were considerably damaged, and 'B' gun platform, and the hedgehog mounting, was wrecked. The forecastle deck was holed in several places and the upper deck was buckled and dished. Radar sets and 'A' gun were severely damaged and the steering gear from the bridge was wrecked. Fighting Efficiency - Impaired. The hedgehog mounting, 'A' gun mounting and radar sets were out of action. The ship had to be conned, from aft.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
WIZARD 10th June, 1944	One Depth Charge containing 290 lbs. Amatol or 300 lbs. Minol	11 months	WIZARD was patrolling the anchorage at Scapa Flow when a depth charge was accidentally dropped when the ship was proceeding at slow speed and preparing to anchor. The depth charge exploded under the bottom in the vicinity of the after magazine and shell rooms. Structure at the after end was severely damaged. The keel was set up 5½ ft. at the cut up and the stern dropped 3 ft. About 85 ft. of the ship between the gearing room and steering compartment - including the after oil fuel tanks, depth charge stowage and after magazine group - was flooded. Both shafts were badly bent. The main engines were relatively undamaged but auxiliary machinery was damaged by shock. The after torpedo tubes and 'Y' gun mountings were jammed. Fighting Efficiency - Seriously impaired. The ship was immobilised due to bent shafts. 'Y' mountings and the after torpedo tubes were out of action.
MELBREAK 28th Aug., 1944	Two Near Miss with 250 lbs. direct action fuzed British Bombs	9 weeks	MELBREAK, while patrolling at 15 knots off the French coast, was attacked by British aircraft, at a time when a force of Allied planes was passing in the vicinity. Two bombs burst 20 to 30 ft. to starboard abreast the fore end of the bridge. The ships starboard side and upper works above the waterline, from the funnel to the bow were perforated in many places by splinters. All compartments forward of the boiler rooms above the lower deck and the forward magazine flooded through splinter holes. All flooding was controllable by leak stopping and pumping. Splinters were also responsible for the following. Two rocket flares on the forecastle deck were ignited and three small fires started on the forward messdecks, none of which proved serious. Numerous electric cables were cut, including those for the forward lighting circuits, gyro compass, forward H.P. switchboard, S.A. gear and two radar sets. Two main aerials, the director and shield of 'A' gun, were also damaged. Fighting Efficiency - Impaired. Speed had to be temporarily reduced to allow the plugging of splinter holes and the control of flooding. Types 291 and 285 radar sets were out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
ZEPHYR 31st Dec., 1944	Probably a British Mk. 19 Moored Mine in 30 fathoms charge 100 lbs. Amatol	3½ months	ZEPHYR was on A/S patrol to westward of the Orkneys at 8 knots, when an explosion occurred abreast the port side of the after boiler room. A hole blown in the side plating measured 7½ ft. by 6½ ft.; the forward bulkhead of the boiler room was slightly distorted and the after bulkhead was holed just below the upper deck. The after boiler room was open to the sea and flooded. Slow flooding into the engine room and forward boiler room through leaks in the boiler room bulkheads - was controlled. All electrical power failed due to the loss of steam in the forward boiler room. Emergency power was supplied by diesels. Fighting Efficiency - Seriously impaired. The ship was immobilised for about one hour by loss of steam and electrical power. Power was later restored when feed water supplies were obtained from the forward boiler room. All torpedoes and upper deck depth charges were jettisoned to reduce topweight.
VALOROUS 22nd Feb., 1945	One Direct Hit with 4.5 inch or 4 inch direct action fuzed Shell probably British	Nil	VALOROUS, while escorting a convoy, was hit by a shell which detonated on the starboard side at the upper deck level abreast the forward boiler room. It was thought that the shell was fired by a ship in the convoy during an enemy attack. It blew a 2 ft. by 1½ ft. hole in the upper deck. Splinters caused extensive damage to structure in the vicinity of the burst and also slight damage to auxiliaries in the engine room. Electrical cables, the most important of which were those serving gunnery control, were also damaged. Fighting Efficiency - Impaired. Communications to 'X' gun and the transmitter and receiver leads from the director of 'X' gun were out of action. Two turbo fans were temporarily out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
PORT COLBOURNE 29th June, 1944	Explosion as the result of own Hedgehog Attack	5 weeks	PORT COLBOURNE, while operating in the English Channel, was damaged by a heavy underwater explosion as the result of a hedgehog attack on an A/S contact. It was thought probable that the A/S contact was the wreck of an ammunition ship. Considerable shock damage was caused to radar and A/S equipment and several pipe lines throughout the ship were damaged. Fighting Efficiency - Impaired.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
NIGER 5th July, 1942	A Moored Magnetic British Mine charge 320 lb. Minol	Sunk	NIGER was escorting a convoy to Iceland at 8 knots, when an explosion occurred towards the after end on the port side. Immediately after the explosion NIGER listed to port, then rolled to starboard, rolled back again to port and then turned completely over and floated bottom upwards. The ship settled by the stern and finally sank, with the bows vertical, about an hour later.
TADOUSSAC 9th June, 1944	One Direct Hit with approx. 3.5 inch Shell probably Allied	Nil	TADOUSSAC, during an enemy air attack, while anchored off the Normandy beanches, was hit by a shell which had probably been fired from a ship in the vicinity. The shell passed through the minesweeping deck aft, cut the steering engine steam pipe, fractured the stern tube lubrication system and finally came to rest without detonating in a lower deck cabin. The minesweeping and cabin flat was temporarily filled with steam. Fighting Efficiency - Not impaired.
SALAMANDER 27th Aug., 1944 D.N.C.6/R330	(i) One or more Direct Hit with 60 lb. British Rockets Charge 14 lbs. T.N.T. (ii) Several Direct Hits with Cannon Shell	Indeterminate (Ship not repaired)	SALANDER, while minesweeping at 5 knots off the Normandy beaches, was attacked by rocket and cannon firing Typhoons. During the third attack one or more rockets hit the ship aft; it was thought that one or more of these perforated the hull in the vicinity of the mining flat and exploded one of the depth charges stowed there. About 30 ft. of the stern structure above the waterline was destroyed. All compartments were open to the sea and flooded for 40 ft. from the stern. A fire was started amongst the wreckage aft but this was quickly got under control. The steering gear was wrecked and minesweeping gear could not be used due to the weakened condition of the surrounding structure. The depth charge equipment was wrecked or badly damaged. All radar sets were severely damaged by shock or blast. The cannon shells made holes about 4 inches diameter in the upper works but this damage was of little consequence. Fighting Efficiency - Seriously impaired. Speed was reduced to 10 knots, but the ship turned in circles and had to be taken in tow. All radar, depth charge, and minesweeping equipment together with the after twin oerlikon were out of action.

MINESWEEPERS - 1944

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
BRITOMART 27th Aug., 1944	British Rockets	Sunk	BRITOMART, while minesweeping off the Normandy beaches in company with SALAMANDER, was attacked by rocket firing Typhoons. BRITOMART was hit amidships on the waterline and as a result of serious damage sustained, capsized to port and sank.
HUSSAR 27th Aug., 1944	British Rockets	Sunk	HUSSAR, while minesweeping off the Normandy beaches in company with SALAMANDER, was attacked by rocket firing Typhoons. HUSSAR sank as a result of her stern being blown off.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
KITTIWAKE 20th Sept., 1939	One Contact British Mine	16 months	KITTIWAKE, while operating in the English Channel at 10 knots, struck a mine just abaft the bulkhead between the engine room and after boiler room. The ship was practically cut in two at this position and both the engine room and after boiler room were completely wrecked and flooded. Before and abaft the main damage only slight distortion of structure and minor leaks occurred. Fighting Efficiency - Seriously impaired. The ship was immobilised and towed back to port.
PUFFIN 8th May, 1941	Own Depth Charges	2 days	PUFFIN, while on passage at 19½ knots from Humber to Flamborough Head, was damaged by two depth charges during a practise attack. No severe shock was felt within the ship, but the cast iron sliding feet of the H.P. turbines were fractured. Fighting Efficiency - Impaired. Maximum speed was reduced to 12 knots.
LOTUS 27th Aug., 1943	Own Depth Charges	10 days	LOTUS, during a depth charge attack, while escorting a convoy in the Mediterranean, was damaged by the explosion of her own depth charges. Several rivets in the hull plating abreast the after peak tank, steering compartment and engine room were strained and leaking. Oil fuel leaked into the after 4 inch and small arms magazine from the adjoining fuel tanks. All leaks were kept under control by pumping. Fighting Efficiency - Not impaired. LOTUS was able to continue her duties with the convoy.

CORVETTES - 1945

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
STRATHADAM (H.M.C.S.) 11th April, 1945	Hedgehog Explosion	2 weeks	**STRATHADAM**, while operating off Northern Ireland, was damaged during hedgehog attacks on an A/S contact. At the time of one attack 11 bombs had been fired from the mounting when an explosion occurred about 30 ft. above the forecastle deck probably caused by the detonation of one or more bombs. The bridge and forecastle deck were damaged by splinters. Small fires broke out in the forward messdecks, but these were easily dealt with. The hedgehog mounting did not appear to be seriously damaged but electrical circuits were cut and smashed by splinters, preventing the remaining bombs from being fired. The forward capstan was damaged beyond repair. Fighting Efficiency - Impaired. The hedgehog mounting was out of action.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
CLYDE 27th June, 1941	One Direct Hit 4 inch delay action fuzed British Shell	Nil	CLYDE was fired on in error by one of H.M. ships while she was in the act of diving. The shell hit and passed through the port side of the bridge casing, perforated a sanitary tank and screen bulkhead and finally burst on striking the housed W/T mast. No major damage was caused. Splinters severed electrical cables within three feet of the burst and damaged the surrounding superstructure. Fighting Efficiency - Not seriously impaired. The cable aerial and the bridge sperry bearing repeater were put out of action.
THRASHER 26th July, 1942	Four 250 lbs. British Depth Charges	Uncertain	THRASHER, while patrolling in the Eastern Mediterranean, was attacked by a British aircraft which dropped four depth charges. The first appeared to explode under the ship on the port side abreast the fore hatch and practically stopped the ship. The next two exploded on the starboard side, abreast the boat casing and the after end of No.9 torpedo tube. The fourth charge was not seen or heard to explode. The pressure hull at the after end, and all main ballast tanks, were strained and leaking. Abreast the fore hatch, at the after end of the boat casing, and over the motor room cover plate the casing was buckled and distorted. A fire started in No.1 Battery and Nos.2 and 3 were gassing badly. All main vents were slightly distorted and leaking. No.9 torpedo tube shifted slightly on its bed, and other torpedo gear was strained. Gauges and instruments were damaged and thrown out of calibration and all compasses were out of action. The main engines and motors were undamaged. Numerous minor defects occurred. Fighting Efficiency - Severely impaired. THRASHER was ultimately towed to port.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
TALISMAN Approx. 12th Aug., 1942 D.N.C.4B/R196	Four 250 lbs. British Depth Charges charge 186 lbs. Torpex	2 weeks approx.	TALISMAN, while operating in the Mediterranean, was attacked by a British aircraft which dropped six depth charges. The submarine was at 45 ft. depth when the charges were dropped and four of them are thought to have exploded across the stern, one on the starboard side and three on the port side. The pressure hull plating at the after end was slightly dished between frames, and several rivets were strained and leaking. The forward D.S.E.A., upper conning tower and engine room hatches were slightly distorted. Shock effect temporarily immobilised the steering gear and starboard main motor and the variable speed gear of the after hydroplanes seized, putting the hydroplanes out of action. About 90% of the lights were damaged and all lighting at the after end failed. Various shallow depth gauges, voltmeters and ammeters were damaged and out of action. The periscopes were optically defective. Fighting Efficiency - Seriously impaired temporarily. The submarine dived, temporarily out of control, to 355 ft.
UNBEATEN 11th Nov., 1942	Possibly by own forces	Sunk	UNBEATEN, while operating in the Bay of Biscay, was sunk, possibly as the result of attacks carried out by Allied forces. No details of the incident are available.
SCEPTRE 7th June, 1943 D.N.C.4B/R246	Four 250 lbs. British Depth Charges charge 186 lbs. Torpex	2 weeks	SCEPTRE, while carry out A/S exercises in the Orkney area, was attacked by a British aircraft when submerged at 29 ft. Four explosions were heard, the ship was shaken and superficial internal damage sustained. It was thought that the depth charges straddled the submarine abreast the conning tower, the nearest exploding about 55 ft. to port of the pressure hull. No damage was caused to the pressure hull and only minor damage to the external tank plating. The steering gear, both telegraphs, hydroplanes, sperry compass, and all telemotor pumps were out of action and some lights were extinguished. All this damage was mainly of a temporary nature consisting of minor failures due to shock. Fighting Efficiency - Not seriously impaired. If the submarine had been on offensive duties, it is considered that, in view of the minor nature of the damage, she would have been able to have continued on patrol.

SHIP DATE OF INCIDENT	NATURE OF ATTACK	TIME OUT OF ACTION	BRIEF ACCOUNT OF DAMAGE AND LESSONS LEARNED
SPORTSMAN 13th Sept., 1943	Seven Torpex filled 350 lbs. Depth Charges from American aircraft	3 - 4 weeks	SPORTSMAN, while operating in the Mediterranean, was depth charged by an American Liberator aircraft. The charges were set to 25 ft. and one landed on the bridge and exploded when the submarine had dived to that depth, causing the main damage sustained. The conning tower hatch was damaged and conning tower flooded while the bridge casing and deck plating was smashed and distorted. Nos. 3, 4 and 5 main ballast tanks leaked. Both periscopes, radar array and bridge equipment received severe damage. Many electrical defects occurred as a result of shock and the flooding of the conning tower. Defects occurred in the after tubes. Several castings of auxiliary machinery were cracked and a compressor damaged. A few minor leaks were also started. The main engines and motors were undamaged. Fighting Efficiency - Severely impaired. The submarine was reduced to one compressor and Nos.3, 4 and 5 main ballast needed blowing hourly.

APPENDIX

H.M. SHIPS DAMAGED or SUNK by British or Allied Weapons during the period September, 1939 - September, 1945.

NOTE: These incidents have not been included in the Analysis of Loss and Damage by Enemy Action on Sheet iii of this book.

Ship	Type	Weapon	For account see page
ACHATES	Destroyer	Mine	468
ARK ROYAL	Aircraft Carrier	Depth Charge	463
ARROW	Destroyer	Depth Charge	467
ASSINIBOINE (H.M.C.S.)	Destroyer	Depth Charge	470
BICESTER	Destroyer	Bomb	471
BITER	Aircraft Carrier	Mine	464
BRITOMART	Minesweeper	Rocket (Sunk)	478
CASTLETON	Destroyer	Scuttling Charge	469
CLYDE	Submarine	Shell	481
EAGLE	Aircraft Carrier	Bomb	463
ESCAPADE	Destroyer	Hedgehog Explosion	472
FROBISHER	Cruiser	Bomb	466
GARTH	Destroyer	Shell	469
HUSSAR	Minesweeper	Rocket (Sunk)	478
ILLUSTRIOUS	Aircraft Carrier	Shell	464
IMPERIAL	Destroyer	Torpedo (Sunk)	468
KHARTOUM	Destroyer	Torpedo Explosion (Sunk)	467
KITTIWAKE	Corvette	Mine	479
LOTUS	Corvette	Depth Charge	479
MALAYA	Battleship	Shell	461
MELBREAK	Destroyer	Bomb	473
MENDIP	Destroyer	Depth Charge	467
NEWFOUNDLAND	Cruiser	Torpedo Explosion	466
NESTOR (H.M.A.S.)	Destroyer	Depth Charge	468
NIGER	Minesweeper	Mine (Sunk)	477
PORT COLBOURNE	Frigate	Hedgehog Explosion	475
PUFFIN	Corvette	Depth Charge	479
QUALITY	Destroyer	Torpedo Explosion	472
SALAMANDER	Minesweeper	Rocket	477
SCEPTRE	Submarine	Depth Charge	482

Ship	Type	Weapon	For account see page
SHEFFIELD	Cruiser	Mine	465
SHEFFIELD	Cruiser	Shell	466
STRATHADAM (H.M.C.S.)	Corvette	Hedgehog Explosion	480
SPORTSMAN	Submarine	Depth Charge	483
TADOUSSAC	Minesweeper	Shell	477
TALISMAN	Submarine	Depth Charge	482
THRASHER	Submarine	Depth Charge	481
TRINIDAD	Cruiser	Torpedo	465
TUSCAN	Destroyer	Mine	472
UNBEATEN	Submarine	Not Known	482
VALOROUS	Destroyer	Shell	474
VICTORIOUS	Aircraft Carrier	Aircraft with bombs crashing	463
VINDEX	Aircraft Carrier	Aircraft with depth charges crashing	464
WIVERN	Destroyer	Depth Charge	470
WIZARD	Destroyer	Depth Charge	473
ZEPHYR	Destroyer	Mine	474

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